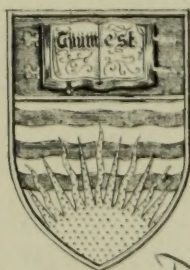


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AN INTRODUCTION TO THE STUDY OF SOCIETY

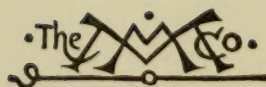
An Outline of Human Progress
And Fundamental Principles



AN INTRODUCTION TO THE STUDY OF SOCIETY

THE UNIVERSITY OF CHICAGO
CHICAGO, ILL.

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AN INTRODUCTION TO THE STUDY OF SOCIETY

An Outline of Primary Factors
And Fundamental Institutions

BY

FRANK HAMILTON HANKINS

PROFESSOR OF SOCIOLOGY AT SMITH COLLEGE ON THE
MARY HUGGINS GAMBLE FOUNDATION

New York

THE MACMILLAN COMPANY

1928

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Set up and electrotyped.
Published July, 1928.

SET UP AND ELECTROTYPED BY T. MOREY & SON

PRINTED IN THE UNITED STATES OF AMERICA BY
THE BERWICK & SMITH CO.

Dedicated to Sociology 26
at Smith College
Classes of 1926-7 and 1927-8
In grateful acknowledgment of
their inspiring interest and helpful criticism

PREFACE

This work is especially planned to give the student beginning his college work in sociology the broad background necessary for the advantageous pursuit of advanced courses. It is the author's hope that it may give to the base course in sociology somewhat the same unity and systematic survey of fundamentals which elementary texts in economics give to a neighboring field. That there is need for such a work is shown by the present experimentation with various types of introductory courses. It is shown also by the wide feeling among teachers of sociology that there is an essential background of fact and theory which the student must have in order to carry on the study of advanced courses with profit, but which can now be gotten only by the use of long and varied reference lists. This book is based frankly on the belief that a broad introductory course is preferable, as a first course, either to the problems course or to the more specialized course dealing with one type of sociological interpretation.

Sociology departments are more and more frequently offering introductory courses in the sophomore year, or even in the freshman year. The material here presented is designed for such courses. It has been used for several years with large classes, of whom about two-thirds have been sophomores, the remainder, juniors and seniors.

In the light of this experience the contents of this work have been so shaped as to meet the requirements of two classes of students. There are, first, those who plan to major in sociology and wish a preliminary survey of the field. There are, secondly, those with major studies in other subjects, who wish some insight into human origins and institutions in their general aspects. It is believed that a careful perusal of the following pages will give to the latter some insight into those social facts, theories, and problems which are most worth while for intellectual breadth and general culture.

At the same time it will give those entering upon a more extended study of sociology the necessary background for realistic,

and hence profitable, thinking regarding social processes and problems.

Such a preliminary survey has become a genuine necessity. The college curriculum is now so crowded that the student of the social sciences, and of sociology in particular, cannot postpone his first work in the field until he has had all the desirable preliminary courses in geography, biology, and psychology. Teachers in this field are, in fact, finding it necessary to present their beginning students with some of the pertinent materials from these basic sciences. The outlines presented in this work should be supplemented with appropriate references and class discussions, in order to make them clear, to avoid dogmatism based on singleness of viewpoint, and to give further insight into their significance for group life. To this end, reading and reference lists and type questions have been appended to each chapter.

The study begins with some consideration of the pitfalls of bias and the characteristics and significance of the evolutionary viewpoint. Then comes a study of the origin of man and of his diversification into races. After a brief transition chapter, we enter upon a survey of the primary factors in social life, the geographical, the biological, the psychological, and the cultural. Then follows another transition chapter dealing with certain essential concepts, such as community, society, and institution. Thereafter are studied the fundamental social arrangements whereby man has solved the major problems of living together in groups, namely, material culture; myth, magic, religion, and science; the family; and the state. This is admittedly a wide field, but experience has shown that it can be covered, with very gratifying results, in a three-hour course throughout the year.

Such a survey is, however, an immense task, and only partial success can be claimed for the effort here made to encompass it. It is, on the other hand, quite worth the effort. To see social life as a whole, to see the trends of cultural evolution, to gain insight into those basic conditions which control the further evolution of culture, and thus to gain some understanding of their significance for the future welfare of nation and of humanity, these are the ultimate goals of all learning. As one surveys the pages of history, he sees the rise and fall of great civilizations, and wonders why. He observes changes in the character of social institutions and again wonders what has brought them about and what may

be their significance for human welfare and social efficiency. Quite probably we shall never have complete answers to these and similar questions, for the boundaries of human knowledge seem to be ever receding. But we can arrive at some understanding of where the civilization we share came from, why it has its present form, what are the main factors and forces operating upon and within it, and what is the general direction of its further development.

In this introductory volume we attempt only preliminary answers to these ambitious questions. If we succeed in showing the student that final answers are not easy, that popular answers are mainly the product of tradition and of the rationalization of present interests, and that scientific research in the social sciences promises more for the future of humanity than any other activity now open to human talent, we shall have abundantly justified such an intellectual excursion as this book undertakes.

To scholars in this field, the author's numerous obligations will be abundantly evident. The references throughout the book are ever present reminders of that fact. The material has grown and taken form during several years of teaching it. In both form and arrangement it has profited immensely from the thoughtful criticisms and suggestions of the students of the classes to whom it is dedicated. It was their enthusiastic encouragement that led to its appearance in book form. During the past year the substance of these chapters has been used in classes by Professor Donald R. Taft, formerly of Wells College, and by Professor Ivan E. McDougale of Goucher College. I am deeply obligated to both of them, and especially to the former, for numerous suggestions, both as to matter and as to form. I am under similar obligations to Miss Mildred Hartsough, who has most ably assisted in the introductory course at Smith College. The preparation of the "Index" by my son Robert greatly relieved the pressure of work in its final stages. Above all, I am indebted to my wife, who not only has read the entire proof, but has assisted in countless other ways in what proved to be a somewhat arduous, though agreeable, task.

FRANK H. HANKINS.

Northampton, Mass.,
June, 1928.

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AN INTRODUCTION TO
THE STUDY OF SOCIETY

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CHAPTER I

INTRODUCTION AND BACKGROUND

THE PITFALLS OF BIAS

Scientific Objectivity. In this day and age the value of scientific research and the contributions of scientific knowledge to human welfare are universally recognized. It would seem, therefore, unnecessary to emphasize the necessity of scientific objectivity in the study of the social sciences. The student, however, cannot progress far without discovering that such emphasis is nearly as necessary to-day as it has ever been. So intimately intertwined with our observation and judgment regarding social problems are our own sentiments and interests that it is next to impossible to achieve a thoroughly impartial attitude. By scientific objectivity is meant the observation and interpretation of facts as they truly are, regardless of the consequences for the interests, previous judgments, or emotional preferences of the observer. Such objectivity is relatively easy to achieve in the study of purely physical phenomena, but even with respect to these there are many notable cases where social tradition has long prevented acceptance of a true interpretation by the general public. Such are, for example, the famous cases of the findings of Copernicus and Galileo with reference to the solar system, and Darwin's proof of the natural origin of new species. It was, indeed, 200 years after Copernicus that the Church officially admitted that the earth was not the center of the solar system, and there is to-day, especially in America, widespread opposition to the acceptance of evolutionary theories which the scientific world accepted two generations ago.

Obstacles to Scientific Candor. If, now, we inquire into the reasons why scientific objectivity is so difficult to attain, especially with reference to social problems, we may note the following.

In the first place, it is the social tradition into which we are born that molds our viewpoints and presents us with ready-made solutions of most important problems. We necessarily think in terms of our own culture, and the fundamental elements of that culture are accepted by each of us as representing the truth. One sees this clearly if he contrasts the attitudes of Christian with that of Mohammedan, of Baptist with Catholic, of Democrat with Republican. The intellectual background of each of us is a more or less illogical and ill-assorted *mélange* of remnants of primitive superstitions regarding some things, moderately well-informed notions regarding other things, and strictly accurate scientific ideas regarding still other things. It so happens that traditional attitudes are most powerful with respect to social problems precisely because they have been and are the most intricate and difficult to analyze. They have, therefore, been most subject to solution on the basis of tradition. It follows that persons who have achieved great scientific objectivity and a command of the methods of science in some field of the natural sciences may be almost wholly lacking in these qualities when they approach problems of social life and organization. A mathematician or a physicist may dogmatize with great vigor and deep emotion regarding questions of social philosophy, though he would be critically minded, unemotional, and in an attitude of intellectual impartiality with respect to problems of his own field.

In the second place, the blinding effects of ignorance or incomplete knowledge and its associated emotions often make impossible even an approach to the facts. The social tradition seems to the ignorant and provincial mind a completed body of wisdom in itself. There is, hence, a close association between ignorance and dogmatism. Obviously, the totality of our ideas consists of what we know from tested observation and experience and what we believe from having been brought up in a certain social tradition. If we try to distinguish between the things we really know and the things we merely believe, we shall see that the former relate primarily to practical affairs and objects and processes in nature, whereas the latter relate to religion, morals, the family, government, and the state. We shall also find that there is very little emotional content in things we know, such as mathematical formulæ, physical and chemical processes, the distance to the nearest metropolis, or the speed of an ocean liner. On the other hand,

there is an enormous emotional content in our ideas regarding religion, family, the moral code, political differences, and economic organization. We may say that, when a matter has become fully established and accepted as a scientific fact or doctrine, it loses most of its emotional power to bias our thinking. Thus we do not get excited over the statement that the earth turns on its axis and revolves about the sun, but Copernicus and Galileo set the whole medieval world agog by such assertions. The doctrine of evolution still arouses immense feelings of opposition in some quarters but is taken as a matter of course in others.

Ignorance, superstition, and impervious emotional biases tend to go together, as do their opposites,—broad knowledge and scientific candor. Men everywhere show fear and distrust of the strange and the unfamiliar. Children of many middle-western parents a generation ago were brought up in an atmosphere which made them think of a Democrat as a strange, semi-human creature of malicious mind and destructive will; Southern children, on the other hand, thought of Republicans in much the same way. More recently Jews, Socialists, and members of the I. W. W. have been popularly conceived in similar terms. The provincial person, with only countryside or village experience, often has strange and fantastic notions regarding the religion, morals, and family life of the city man. Many people have religious scruples against not only card playing, the stage, and light literature, but also music and the arts generally, as developing too great enjoyment in this life and winning people away from otherworldliness. For the most part such fears are rooted in the almost universal apprehension aroused by what is new or unusual, an apprehension which makes the masses of men in nearly all times and places deeply conservative. And it is precisely these attitudes of dogmatic assurance as to what is already believed and dread of the evil consequences that may result from the unfamiliar that prevent investigation.

In the third place, we cannot emphasize too strongly the importance which attaches to our fundamental social sentiments. These sentiments are not only extremely powerful and very insidious in the ways in which they influence our thinking, but they are so necessary for the maintenance of social order that they seldom seem to require any justification. A patriotic attitude, for example, is almost universally approved as one of the

marks of the good citizen, and yet it renders us almost incapable of passing impartial judgments on international questions involving the interests of our own country. We find it extremely difficult to weigh judiciously the respective merits of our own institutions or the qualities of our own people in comparison with those of another country. At the same time there is the opposite attitude of anti-patriotism, or a spirit of derogation toward things relating to one's own country. Many Americans, for example, moved by patriotic bias, when traveling abroad see few things that do not excite their humor or scorn as being obviously inferior to things at home, whereas others, moved by a strong feeling that America is crude and as yet only half civilized, find little to praise here but much to praise abroad.

In like manner, race prejudice is an almost universal and subtle bias which leads nearly everyone to magnify the superiorities of the race to which he belongs and to minimize the weaknesses. We witnessed a great many manifestations of such bias during the recent war. Under such circumstances, the sentiments of race and patriotism combine to make the average citizen so credulous that a propaganda of lies is eagerly believed. Another illustration, but much less extreme, is seen in the post-war Nordic propaganda in this country. This pictured the tall, blue-eyed blond American type as the premier race among men, and we were told that the Old American stock was an especially pure variety of this race. This was eagerly believed by many native Americans, who, though brunct or far from blond themselves, could find among their more or less remote relatives evidences of tall, blond ancestry. In such matters the "will to believe," which is a very sly and treacherous mental trait, is based on the subtle flattery of the ego. There resulted from our post-war emotional debauch important political movements, such as Hundred Per Cent Americanism with its accompaniments of Ku Klux Klanism, anti-Semitism, and religious bigotry.

Set over against these flagrant manifestations of the racial bias are certain manifestations of anti-racialism. By this is meant the sentimental opposition to every suggestion of racial difference, especially of racial superiorities and inferiorities. Under the combined influence of democratic and Christian sentiments many persons preach a doctrine of inherent racial equality—that one race is as good as another, that the sole reason for differences

in racial achievements are differences in cultural opportunity. So violent are the emotional attachments to these opposed doctrines of race superiority and race equality, that an impartial weighing of racial differences, excellences, and defects is extremely difficult to attain.

The difficulties attending the bias of religious sentiments is notorious. In the past, wars were fought over differences of belief which now excite only an amused intellectual curiosity. Even to-day most of the more violent religious controversy rages over matters of belief which are clearly contrary to the findings of science or incapable of any proof or disproof by scientific methods. As between those who see in religion the basis of all that is worthwhile in either individual or social life and those who see in it only illusion and social retardation, the social scientist may find little to choose. He seeks, first, the origins of religious and magical ideas and institutions, and secondly, the part played by them in social organization and the evolution of civilization. He should be able to study Christianity with quite the same detachment as he studies Mohammedanism or Buddhism.

Much the same may be said with reference to our moral sentiments. Those attitudes and customs with which we are familiar are looked upon as unquestionably right. We are prone instantly to disapprove the customs of primitive peoples, for example, as regards matters of sex, family, status of woman, rights and duties, crime, and war, without inquiring how these customs grew out of their social situation and how they were adapted to serve important social ends under the existing conditions. It cannot be too clearly understood that the primary aims of men are the preservation and perpetuation of life, individual and social. To serve these ends social groups develop customs or folkways, which must be viewed as social habits whereby human life is adjusted to its habitat. These customs must first be understood in their social context, as a part of a workable scheme of social life. It will then often appear that they fit into the general scheme of life where they are found much better than customs which seem to us superior both from the standpoint of utility and from that of morals.

In the fourth place, not only does our social heritage do our thinking for us as regards social life, but we are generally blissfully unaware of the extreme complexity of most social problems.

These problems rest on a knowledge of human nature, biological and psychological, on knowledge of the laws of the interaction of men on each other singly and in groups, and knowledge of the laws of man's interaction with his physical environment. We know very little about any of these things. For example, even man's biological nature is little known. The laws of human variation and inheritance and the relation of these to the quality of population, and the significance of the quality of population for social organization and progress are still matters of doubt and dispute, even among the experts. Similarly, psychology is in its infancy, and yet our whole scheme of education and every sort of child training is dependent on its development. Social psychology is less developed than individual psychology, and yet problems of social organization, politics and government, morals and religion are rooted therein. We are equally deficient in our knowledge of the general trend of cultural evolution. We do not even know accurately the effects of modern industry on our natural resources. It is not certain that we are using up the patrimony of future generations, but there are many indications of it. If we are, then our present activities will make it impossible for those who follow us to live as easily and luxuriously as we do. Such changes may take centuries to work themselves out, but they are inevitable in the end. These are only a few among many illustrations of the complexity of social phenomena and of our inadequate knowledge of them.

And yet the man in the street is likely to have positive views regarding any and all matters of social importance. As to the family, religion, morals, economic life, and the state, his views are clearly nothing more than some phase of the current tradition. On the other hand, there is often a tendency for the serious student to put excessive faith in the results of scientific inquiry. The dogmatism of certainty may come from either of two sources: (1) deep-seated "convictions" derived from social tradition, and (2) knowledge based on scientific research. Both kinds of dogmatism are to be avoided as deadly to true enlightenment in an ever-changing world. Even on matters where scientific knowledge is quite full, the mind should not be closed to new facts. Even here, a residue of skepticism is the beginning of wisdom. But we should also be fully aware that convictions based on our social tradition, while often necessary as anchors in the midst of uncer-

tainty, should not be mistaken for scientific conclusions, nor allowed to becloud our minds when we are seeking an objective viewpoint.

In addition to the pitfalls of emotional bias growing out of patriotism, religion, and moral sentiments, are those growing out of social class. Every society is more or less stratified, and this is particularly true of the complex societies in an advanced stage of culture. The differences in the cultural background and outlook of social classes in the same community are often greater than those of different societies or communities. We must beware, therefore, of seeing the folkways through the limited vision of our own class. A large part of the internal strife within any community is due to the inability of one interest group or faction, such as business men, to understand the viewpoint of an opposing group, such as workers, and *vice versa*. It is no part of the rôle of the social scientist, as such, to take part in the class conflicts of his own society. As a human being and citizen he is strongly impelled to do so, often with sorry results for his emotional detachment and philosophical calm.

Finally, we may note that so subtle are our mental operations that our judgments are as a rule, though quite unconsciously, made up beforehand. We approach every social problem with a considerable acquisition of mental habits and predispositions based on past experience and past conclusions, and these more or less automatically determine our attitude in the new situation. Our reasoning, therefore, becomes primarily an effort to justify a mental attitude which was already determined for us by those predilections derived from our past, rather than an impartial analysis. As has often been said, our minds are made up in advance; what our reasoning powers do is to search for "good" reasons rather than "real" ones. It is, for example, in consequence of such rationalization that few men ever change their political party. In every campaign the citizen finds himself searching eagerly for reasons why the candidate or policies of the party to which he is sentimentally attached are superior to those of the rival party, instead of critically measuring all candidates and their policies by some impartial standards of valuation. With every argument he becomes more and more confirmed in the validity of his first judgment.

The Psychological Basis of Bias. If we push our analysis of the difficulties in the way of clear, unbiased thinking in the social

sciences further back into the mental processes involved, we discover that modern psychology has shown that man is far from being the eminently rational creature he was once supposed to be. It has become clear that desires and emotions constitute not only the primary motivations to behavior but to observing and thinking as well. These desires and emotions are often so deeply buried in our mental mechanisms that we are quite unconscious of them. Ofttimes we would find it quite impossible to formulate them ourselves; indeed, we may often be deceived, even in candid moments, as to their real nature and would resent any suggestion by an expert as to what is their real nature. We may note several obvious ways in which these mischievous motivations affect our mental processes.

In the first place, they affect our observations of facts. It is well known that the testimony of eyewitnesses of even ordinary events differ widely as regards details. If the events are such as to cause excitement in the observers, their testimonies will differ still more in detail and may differ quite a bit in main outlines. If the events are of a complex nature, then the utmost variety of descriptions of them will be given. Daily illustrations of these facts may be found in newspaper stories of accidents and reports of the statements of witnesses at trials. What happens in all these cases is a selection of some facts to the exclusion of others, and an imaginative, though often unintentional, invention of others. One will find it very difficult, for example, to give a simple, entirely truthful account of an automobile accident for which he was responsible or of any other occurrence which to some extent reflects discredit upon him. Here the egoistic motivation is clear.

If we seek for illustrations in the realm of the social sciences, we may contrast the differences in the descriptions of the present social order by an orthodox Capitalist and an orthodox Socialist; the descriptions of the state of the country by a staunch Republican and an equally staunch Democrat; the descriptions of the moral and æsthetic qualities of the movies or the theater by a provincial Baptist or Methodist preacher, a movie or theatrical magnate, a critic, and the average movie- or theater-goer. In most such cases the bias of interest and desire is obvious to the person holding an opposite or different point of view. In similar fashion we should note that the organs of the press select and

“play up” such aspects of public events as they wish to emphasize in the minds of their readers. *The New York Times*, for example, tells, in one way, the story of what is occurring in Russia or the British coal strike, while *The Nation* or *The New Republic* tells it in quite a different way. Likewise the reports of public commissions of all sorts and varieties present such a picture of the matters under investigation as harmonizes with the predilections of its majority members. This does not necessarily mean that such reports are consciously fraudulent; it may mean merely that some aspects of the matter are seen by the commission and some are not seen. Every such matter, whether Tariff, Monetary Reform, Immigration, or Prohibition, has so many aspects and related facts that some selection must be made in the very nature of the case, and the often unconscious motivations of unexpressed wishes and desires do the selecting. We may say, therefore, that there is a very true sense in which all the news we get is propaganda of one sort or another. If most of it is harmless, it so happens that the propaganda element becomes more and more pronounced as the matters being described are more important for public policy.

In the second place, these same predisposing emotional elements affect our recollection of events. This is an important element in the testimony, news reporting, and public investigations mentioned in the preceding paragraphs. We need to add only that many incidents which were actually observed and which could readily be recalled when impressions were fresh fade quickly from memory. Some incidents fade more quickly than others so that here again we meet the selective action of our mental processes. This is so important, even in scientific research in the natural sciences, that Charles Darwin made a practice of jotting down all observations contrary to his own theories, because he detected in himself a tendency to forget easily or to overlook such facts. How much more likely is this to be the case with reference to social problems and social institutions with respect to which we all have a multitude of deep-lying emotional trends that give to all pertinent facts a strong egoistic valuation.

In the third place, the higher mental processes of judgment, analytical thought, and generalization, are deeply affected by these same desires. In a recent very interesting book, Professor

Graham Wallas ¹ has described what he considers the four phases of creative thinking. These are Observation, Incubation, Illumination, and Verification. There is, first, a storing of the mind with facts; secondly, a period in which the facts lie fallow in the mind during which the sub-conscious processes are presumably working them over; then comes a new viewpoint, a discovery, a hypothesis, or new synthesis of the facts; and finally, this new interpretation must be verified by fresh observations and tests. Now, it should be clear that in all these processes there is more or less intrusion of prejudice or bias. As we have seen, the facts are often complex and selected; when these are being worked over in the incubating period there is still further selection. Indeed, we may say, that, with reference to most social affairs, the facts are so numerous that they must be selected to some extent or otherwise no synthesis or generalization would be possible. But we must not overlook the fact that such selection gives to all our thinking regarding social problems a personal aspect and limitation which is in last analysis inescapable. The history of human thought shows that even the greatest philosophers have had their thinking deeply colored by the prevailing moods and predilections of their age.

As already stated we must do our thinking in terms of our own culture. Science and philosophy are, therefore, never complete but always evolving; we may hope they are evolving toward a clearer and more accurate view of reality. Professor F. J. E. Woodbridge has shown ² that history must be written afresh in each generation because each generation of historians sees the events of the past from a different viewpoint and must, therefore, rewrite the record to harmonize therewith. In the light of such a fact, there would seem to be need of great skepticism as to the finality of our own thinking regarding the social values, the social institutions, and processes amidst which we live. Ultimate or final truth, even in the most exact and complete sciences, seems to be ever receding. We may approach closer and closer to it, but never quite achieve it. Or, we may say that the progress of our understanding of nature, man, and society is a continuous process of refining our illusions, of substituting for coarse and crude illusions others that are less so.

¹ *The Art of Thought*, Harcourt, Brace and Co., 1926.

² *The Purpose of History*, Columbia Univ. Press, 1916.

Wish Often the Father to Thought. In this connection much emphasis should be given to a type of thinking which is designated by such terms as "pious wishing," daydreaming, or "wishful thinking." We often observe in others that "the wish is father to the thought." This is notably true of much social theorizing. Just as we build castles in the air, or allow ourselves to go off into a pleasant daydream, so we frequently solve our social problems by utopia building. What happens here is an escape from the hard and unpleasant facts of reality by entrance into a dream world, where difficulties are resolved and pleasant conditions substituted for unpleasant ones. Much of the sociological writing of H. G. Wells and Bertrand Russell has been of this sort. There can be no doubt that a large part of the appeal of Socialism, Communism, and other radical transformations of the present social order is due to their easy solution of present hardships. Their appeal is, consequently, greatest among those classes that rank lowest in the present order.

At the opposite extreme is carefully controlled reflective thought in which the elements of desire are reduced to the possible minimum. One of the surest scientific methods of reducing the quantity of bias in such thinking is to reduce the observations on which the thinking is done to quantitative form. It is for this reason that all sciences tend toward mathematical expression as they become more and more accurate and complete. In the social sciences the introduction of statistical methods has begun in a very successful manner. Such methods are very difficult of application, requiring usually a considerable staff of expert workers and hence involving more time and money than society has yet seen fit to supply, although the problems to be solved thereby deeply affect human welfare. Moreover, as the aphorism has it, "Figures won't lie but liars will figure," so that statistical findings are often unreliable, not merely because of their narrow scope, but because of the obscure biases introduced into both their collection and interpretation.

Thus we see that our thinking regarding social problems, as regarding all problems, ranges from (1) the possession of a few facts, a strong current of desires, emotions, and sentiments, and a free unchecked imagination seeking an escape from reality, to (2) the possession of many well-tested facts, controlled desires and emotions, and a disciplined imagination. If we are to perfect

our knowledge and understanding of social life and processes we must avoid as much as possible the easy and pleasant mental activities of the first type and cultivate the more difficult, rigorously realistic activities of the second.

The Attitude of Suspended Judgment. Strive as we may, however, for a completely objective attitude toward social questions, we should realize that in last analysis it is not wholly possible to liquidate our own predilections so as to see social life with the perfect objectivity of a god. Even the analysis of our own biases requires us to pass judgment on those social values which are primary factors in the biases themselves. If, for example, I am studying matrimonial institutions, I already have in my psychological mechanism certain attitudes toward the importance of love, marital fidelity, size of family, standards of well-being, and relationship of parents to children. I am, therefore, very likely to react favorably to those forms and customs of family life which fit my predilections. If we ended our sociological inquiry at this point, sociological judgments would become mere matters of taste, and sociological reasoning mere rationalizations of such subjectivist attitudes. Certain it is that a vast amount of sociological writing is of that sort. We shall do well, consequently, to begin our study by leaving behind—at least in the earlier stages—efforts to pronounce for or against the varying ways in which men have solved or propose to solve the primary problems of social life. This means that we shall take an attitude of suspended judgment until we have acquired as full an understanding as possible of how certain customs or institutions came about, how they worked in practice, what important social values they served, how they were related to other features of culture, and how they compare with alternative practices elsewhere. We need not be surprised if we find that social customs and institutions must change with time and place and that there is a certain inevitableness about them under the existing social circumstances where we find them. We may thus be led to approve female infanticide or polyandry under some social conditions, while disapproving them under other conditions.

Social Relativity. This would mean that we see social practices to be relative rather than absolute in value. By this is meant that social customs and institutions must change with time and circumstance so as to serve human needs under differ-

ent social conditions. When Jesus declared the Sabbath made for man and not man for the Sabbath, he spoke in terms of social and ethical relativity rather than in terms of ethical absolutism. The latter view would hold that the Sabbath must be observed in the same way at all times. The realization that customs have definite social causes will enable us to view most of them with emotional equanimity, for we shall realize that just as the customs of the medieval world grew into our own, so ours will in time grow into something different.

Sound Social Ideals Rooted in Knowledge. What we really want to know, first of all, is how and why they thus change. It must be said, therefore, that if one is to be truly objective in the study of social life he must abandon all immediate interest in social reform and social improvement. This is one of the first principles of genuinely scientific social inquiry. It is doubtless true that in practical affairs many problems cannot wait to be solved in strictly scientific fashion. The pressure of social circumstances compels that something be done in trial and error fashion. Herbert Spencer declared that society eventually went right by virtue of first trying all possible ways of going wrong. History is, therefore, replete with examples of the harm that good men do. Unwise solutions of social questions often create greater difficulties than they solve, as is illustrated by laws which produce results wholly unanticipated by their formulators. In any case, eager partisanship, strong emotional conviction, and sincere desire for human betterment are not in themselves guarantees of sound judgment. The essential thing is to get the clearest possible understanding of cause and effect relationships in the social processes. Having determined these clearly, we can introduce ethical considerations regarding social ends, human values, and human ideals. And we must also observe that an accurate knowledge of just how things come about in social life will enable us to determine what social ideals and values are feasible, how they may best be attained, and how they will work when once put into operation. In other words, we shall realize that sound social ideals grow out of human nature and its social milieu, or are themselves implicit in the nature of things. They are not heaven-born nor inspired by divine revelation, but must be discovered as the ultimate and most sublime gifts which the revelations of science will at last enable man to grasp clearly and hold firmly.

FUNDAMENTAL VIEWPOINTS

Only Two Possible Philosophies. It is interesting to discover that there are two kinds of explanations which comprise nearly all our theories. These may be variously designated as the *theological* and the *scientific*, the *supernatural* and the *natural*, the *indeterministic* and the *deterministic*, or the *creationist* and the *evolutionary*. Every phenomenon in nature is explained in one or the other manner, and every type of philosophy is reducible to one or the other viewpoint. Thus the origins of life and of man are explained sometimes by the theological or the creationist theory and sometimes by the scientific or the evolutionary view. It may be possible to reconcile these views by making the evolutionary processes a part of the creationist plan, as is done in the now generally accepted theology. They may be reconciled also by making creativeness a normal feature of naturalistic processes, as is done in certain current philosophies. Such reconciliations, however, whether real or apparent, do not conceal the fact that these two viewpoints have been in the past and still are to-day looked upon by many thinkers as fundamentally opposed. We may now outline these two theories, together with one or two variations of them.

The Theological View. Let us take first the theological, indeterministic, or creationist view. This is the simpler theory and is almost universal in the childhood of the race. Primitive man peopled his world with many good and bad spirits and made them the causal factors of events both within himself and in the world about him. If he was successful, he attributed his good fortune to the favor of one or more gods; if unsuccessful, he attributed his ill-fortune either to a god or a devil. In similar fashion social events were attributed to some design of the gods. It was everywhere believed that the gods had laid down more or less definite rules for individual behavior and social policy. Thus, individuals and groups who followed these rules were righteous and those who broke them, unrighteous. As individuals were believed to be punished for their unrighteousness and rewarded for their righteousness, so also were tribes, societies, and nations. Under the influence of such beliefs much attention was given to divination and to revelations as means whereby the will of the gods could be ascertained. Consonant with these attitudes was

the belief that the gods could be moved to intervene in individual and social affairs by prayers and sacrifices.

While the progress of thought has greatly refined these views, they still persist in many quarters. Thus it still happens that the people in certain sections of this country are called upon to pray for rain and to adopt an especially devout and penitent attitude in order to save crops from drought. Such an attitude is obviously based on fear and ignorance, for God is called upon to save His people from whatever they do not understand or what they are unfamiliar with and hence fear. Thus He is now being called upon in various sections of this country to save us from the evolutionists, the Catholics, or the Jews. Similarly, in times of social crisis, there is a resort to temples and altars with prayer and sacrifice in the expectation that God will thus be moved to exert Himself in favor of our own nation. Peoples of other nations may be similarly praying to the same God, as during the recent war, thus creating an insoluble dilemma. Consonant with this view is the explanation of past historical events in terms of the will or nature of God. Thus, in America, the Constitution is often said to be due, in some mysterious way, to the favoring oversight of Divine Providence. The historian, George Bancroft, saw in the triumph of those who favored the formation of a Union under the Constitution, "the movement of the Divine Power which gives unity to the universe."³

Now the objections to such a view in this day and age are primarily three. In the first place, it *is characterized by a neglect of the principle of natural causation*. There was a time when even the movements of the heavenly bodies were believed to be regulated by the special will either of an indwelling divinity or by the will of an all-controlling Providence. After the discoveries of Copernicus, Galileo, Kepler, and Newton, however, it appeared that the universe was self-regulating, so much so that Laplace called his astronomy, "celestial mechanics." Since then the introduction of the scientific viewpoint has advanced from one field of human interest to another, to geology, biology, psychology, and, finally, to social life. There appears no reason now why the same logic of natural causation should not apply to all phenomena, even those relating to our own sentiments, our habits and customs, our cherished social institutions, our morals, and

³ *The History of the Constitution of the United States*, Vol. II, 1882, p. 284.

our religion. Here also causes produce effects and by patient inquiry we may at length discover them.

In the second place, the theological view *precludes inquiry*. It seems to settle the fundamental problems in a final and absolute manner and thus removes them from the inquisitive research of the curiously-minded. The proof of this is found in the unwillingness of many people to have those problems which they have solved by theological theory inquired into by scientific methods. But it is extremely important to realize that as a matter of fact the theological explanation tells us nothing of realistic value. When, for example, the theologian told our ancestors that the earth was created in seven days, he was only admitting his own ignorance of how the earth actually came about. The creationist explanation is virtually an admission of ignorance, but it carries such a weight of emotional authority that it seems to the naïve intelligence to be a final and complete explanation. In consequence, geology, in its day, had the same struggle to overcome the opposition of theological predilections which the new astronomy had three centuries ago, and which organic evolutionism has had in a later day. The progress of modern thought shows that the theological explanation has been gradually ousted from one sphere of phenomena after another, first, the astronomical, then the geological, the physical, and the chemical, later the biological, and just now it is being ousted from the psychological and the sociological.

In the third place, the theological view *is fatalistic*. It looks upon the course of historical development as ultimately controlled by the outcome of a struggle between good and evil spirits. The triumph of God or Satan gives the turn to events. This is a genuinely oriental view. The faithful Mohammedan believes that when his time to die as determined by Allah has arrived he will die regardless of circumstances or his own efforts. He thus gives expression to the fatalism implicit in his theology. Consonant therewith also is his belief that Allah will protect him under all circumstances until the fatal hour. Obviously, this makes man a puppet of the divinities. It thus makes impossible the control of his own destiny and the course of social evolution through the acquisition of knowledge. Such doctrines are fatalistic in their philosophical implications because they place the causes of phenomena outside the realm of natural law and, there-

fore, beyond the reach of human understanding and control. They lead to an unreasoning optimism or an equally unreasoning pessimism depending entirely on how one conceives the spiritual architects of human fate.

The growth of modern knowledge has been so rapid, and the operation of cause and effect proven to be so steady and consistent in every sphere of human experience, that the whole range of phenomena of which man is aware has at last been seen to be interrelated and interdependent. This is a hopeful view because the only positive basis for the improvement of man's lot on the globe is the acquisition of such knowledge of the regularities and uniformities of all phenomena as will enable man either to control them or to adapt himself to them in ways most advantageous for human purposes. This is the occidental view and is implicit in our faith in the value of education and scientific knowledge. Thus, we realize that the length and happiness of life may be greatly affected by our own behavior. In this belief we have studied medicine and sanitation, reduced sickness, and increased the average length of life from less than twenty-five years in 1500 to over fifty-five years to-day.

The Magical View. A type of historical and sociological interpretation which is often very much like the theological and in practice closely associated therewith is the magical, the mystical, or metaphysical. The essence of the magical theory is belief in the mysterious operation of strange but powerful forces which are set going in manners equally strange and mysterious. The essential difference is that the theological forces are personal, while the magical are largely impersonal. Many primitive and modern customs illustrate the belief in these forces and their control over human behavior. The primitive methods of rain making, of insuring success in war, in the chase, and in the planting and harvesting of crops, of curing the sick, and the following of a multitude of good and bad luck signs are illustrations. There are many influential magical beliefs among us, as is illustrated by the unwillingness of many people to begin a journey on Friday, the thirteenth.

Moreover, reflection will show that there is an interpretation of social evolution which is essentially magical in nature. Take, for example, all those interpretations which see social life as the arena of exploitation for such impersonal and disembodied "spir-

its" as the spirit of justice, the spirit of injustice, the spirit of individual liberty, the spirit of greed, the spirit of competition, the spirit of capitalism, the spirit of nationalism, and the spirit of democracy. Obviously, most of these are mental attitudes of groups of men and thus have a certain reality about them. But it is one thing to see such attitudes realistically, as wholly human and as determined by the combined operation of original elements of human nature, social tradition, and the social milieu, and quite a different thing to view them metaphysically as magical potencies shaping the course of history.

Perhaps the most influential of the mystical theories of social evolution is that derived from the eighteenth-century speculations regarding progress. For a century and a half both philosophical and sociological thinking has been thoroughly imbued with the idea that there is a law of progress, that mankind is moving not only ever onward but ever upward. In consequence, historians and social scientists have been busy trying to show that those features of social organization which they individually and personally approve, such as democracy, coöperation, rationalism, or what not, were being more and more fully realized. The evolution of culture has, therefore, been viewed as an increasing realization of democracy, popular government, moral refinement, or other cherished goal. Even so skeptical a thinker as Professor J. H. Robinson finds the processes of history regulated by "the vital principle of betterment."⁴ We might devoutly wish there were such a principle and we were certain of it, for then we need have no further doubt as to the ultimate outcome of historical processes. We would be freed from the necessity of studying those processes in the hope that we might some day control them to our advantage, for we should know that "the vital principle of betterment" would bring us out all right in the end. In other words, such a view posits a metaphysical principle, an "indwelling entelechy," an "*élan vital*," which is a substitute for a beneficent God. Unfortunately history warrants no such assumption. Progress is not foreordained. Even the proudest, wealthiest, and most knowing of civilizations may become but a vanished glory.

The Scientific View. Set over against the theological viewpoint as a mode of explanation is the scientific, the naturalistic, the evolutionary viewpoint. This is characterized by a reliance

⁴ *The New History*, The Macmillan Co., 1912, pp 264-265.

on natural or efficient causes, as over against spiritual forces or magical entities. Giving up the search for first causes, or the beginnings of things, the scientist sees the universe as a self-regulating system of interacting bodies and forces. He sees in every phenomenon an effect of what went before and a cause of what comes after it. The causes of things are contained in the things themselves. Social phenomena are, therefore, not to be explained by some extraneous force operating on society from without, but by the natures of men and women, their political, economic, moral, and religious institutions, and the physical environment in which they find themselves.

The scientist not only posits the universality of natural causes, but he also assumes the regularity and uniformity of their action. By this is meant merely that the same set of causes will regularly and uniformly produce the same result. It is this regularity of causal relations that makes possible the enunciation of scientific laws. We see this regularity clearly in the case of astronomical events where this certainty of operation is so great that an eclipse of the moon, for example, can be foretold many years in advance with amazing precision. Since like causes produce like effects, the knowledge derived from scientific research enables us to foresee the consequences of the operation of natural forces. We are thus enabled to satisfy human wants more fully. The physicist has laid the basis for applied mechanics and the chemist for the applications of chemistry to a great array of human activities. Similarly, the biologist and the psychologist have discovered laws of heredity and behavior which are of immense value in animal and plant breeding and in the training and control of human beings. The economist has worked out the movement of prices, wages, and interest under the general law of supply and demand, the sequence of phenomena in the business cycle, and numerous principles of money and credit, taxation, tariff, international trade, and other features of economic life. The political scientist, likewise, has arrived at an understanding of many features of government, and the anthropologist, ethnologist, archæologist, philologist, demographer, and sociologist are steadily reducing to order and comprehensibility the phenomena of their respective spheres of investigation. Even the behavior of crowds, though transient and highly emotional, is being reduced to causal order and sequence.

It is a truism that, as we move from phenomena of the stellar universe to social phenomena, we move from few and simple causes to numerous complex ones. Consequently, the problems of the scientist become increasingly difficult. This is one of the reasons why we actually know less about heredity, mental phenomena, and social activity than we know about the heavenly bodies. Another reason is that these more complex matters have been of such personal concern that we have resented impartial inquiry into them. We strongly feel that our traditional notions regarding mind and society are sound. One of the reasons for this feeling is that our ideas regarding these things have become intertwined with our religious and theological doctrines. Thus, to the orthodox religious mind it seems almost sacrilegious to assume that our mental operations and the life of our society are governed by laws that are definite and inexorable in their operation, for this excludes the possibilities of divine intervention. But the scientific viewpoint insists on applying the same logic of cause and effect to these fields as to the fields of geology and biology.

The Great Man Theory. There are two other modes of social theorizing frequently used which are sometimes theological in nature and sometimes scientific. One of these may be called the great man theory and the other, the theory of chance events. We discuss them in this order.

There is a tendency on the part of man toward hero worship. This is seen in both primitive and modern man. It is readily understood when we realize that man always lives in groups and has acquired a strong predisposition to follow his natural leaders and to find in them a sense of security and certainty which makes them mysterious and more than human. When Carlyle, therefore, stated that the history of any period is composed of the biographies of the great men who were then living, he expressed a theory that is easily believed. This is also an easy mode of historical interpretation, besides giving to history a romantic color and a powerful emotional appeal.

But there are two distinctly different views of the great man, the theological and the scientific. One is the view of the great man as the agent of a mysterious Providence. Thus, God raised up Abraham. Similarly, He is supposed to have personally guided Washington and Lincoln. It should be clear that we have here

only a modification of the theological view. If the course of social evolution is dependent on great men, and the arrival of great men determined by God, then all we can do is to wait for the great man to appear. We are thus once more in a fatalistic position, helpless in the face of the mysterious plans and powers of Providence.

But there is also the realistic view, which sees in superior men important factors in social life, but views them as produced by biological and social conditions and as limited by their own powers and by the social milieu in which they find themselves. Whatever field of human activity and achievement we study, we see the importance of leadership and of the creative powers of men of genius. But there are at least three important things to note regarding such men. In the first place, the great man is, like all men, the product of definite principles of heredity. We are still grossly ignorant of the exact operation of human inheritance but we can say definitely that talented parents tend to produce talented offspring much more frequently than untalented parents will produce them. This points to the possibility, some time in the future when our knowledge is more complete, of being able to reduce the births of imbeciles and defectives and increase the births of the superior and the talented.

In the second place, the great man has his powers developed and his mental attitudes shaped by his social heritage. Woodrow Wilson, Lloyd George, and Georges Clemenceau at the Peace Conference in Paris were looking at their problems with minds largely shaped by different social traditions. In this they were like the rest of mankind. It should be said, however, that the great mind tends to rise above the limitations of its own background and to acquire an independence and impartiality that common minds cannot attain. There is, therefore, much that is distinctly modern in Francis Bacon, John Locke, Galileo, and Newton, while there is much that is essentially medieval in most of us.

In the third place, not only must the great man be viewed biologically and psychologically, he must be viewed also sociologically. It is his social milieu that gives him his opportunity to develop and display his powers, just as this same milieu sets limits to his influence and determines the problems, forces, and standards of taste and judgment which he must face. Thus, the mind of the mechanical inventor to-day works with a different

stimulus and with different materials on different problems from those of his predecessor. So also statesman, military leader, scientist, and artist are to a great extent children of their times. Not only that, but the nominal leaders are surrounded as a rule by many lesser lights of varying degrees of magnitude on down to that body of followers who furnish the necessary basis for any real social achievement. When the importance of these considerations is fully grasped we see that the great man is really the individual of superior gifts whose powers are being stimulated and utilized by the social group to which he belongs. Genius is essential to great achievements, but it is the social conjuncture which sets the problem. Great epochs are always marked by the number and variety of their men of genius, but neither the epochs nor the genius can be accounted for without giving due weight to a great variety of social factors and conditions which in last analysis account for both of them.

Chance. A quite different mode of explanation is to say that things are due to chance. This is a very common explanation in the case of personal happiness and social events and it is therefore highly important to understand the essential meanings which are attached to the term chance. There are two fundamental conceptions of chance which are, from the standpoint of the logic of scientific method, to be sharply contrasted. These may be called *pure chance* and *mathematical chance*.

The first is the conception of an event as something which just happens without any causal antecedents. Such an event would be a miracle. This is a notion which it is extremely difficult to grasp, because we have all become scientific realists. If we can, however, imagine a world in which there is a complete absence of cause and effect, a world in which there is no uniformity and regularity, a world in which the food that nourishes us to-day will poison us to-morrow, then we shall imagine ourselves in a pure-chance world. This is obviously a world of chaos. It is a world in which human reason would be absolutely useless, in which scientific knowledge could not exist because there would be no natural laws which the human mind could discover. Obviously, such a conception is contrary to all human experience, though it bears a faint resemblance to primitive man's conception of events as due to the caprices of spiritual entities. That was a grossly fatalistic view.

Mathematical chance, on the contrary, is a highly useful concept. It enables us to give clarity to our thought when we say that an event is due to chance. If, for example, I toss up a coin, I may say it is a matter of chance whether it comes up a head or a tail. Is there any logic in what we call games of chance? Is there any discoverable regularity or uniformity in the results of throwing dice or flipping pennies? The answer is indubitably, yes. What we mean by chance in such cases is that the result can neither be predicted nor followed through its antecedent chain of causes for the simple reason that these causes are so numerous and so minute as to elude our detailed observation. This does not mean that the result is uncaused or chaotic in any sense but rather that I am ignorant of what the result will be. Obviously I am dealing here with *mathematical chance or the theory of probabilities*. In a case as simple as this I may say that the probabilities or chances are one to one that the result will be a head. In like manner, if I toss ten or a hundred coins at once, I can determine what is the probability that any given number of heads will turn up either in a single throw or in any number of throws. We thus see that while there is uncertainty as to whether any particular coin will be a head or a tail, there is a high degree of certainty (probability) as to the results of many throws.

So great is this probability of the occurrence of chance events when viewed in great numbers that gambling machines are so designed as to retain a predetermined proportion of the coins wagered on or in them. In such a case every turn of the wheel would give a chance result; the player may win or lose. But in a thousand or ten thousand turns, the results will show a regular excess of losses. The fact that chance events when viewed in quantity reveal statistical regularities is often referred to as *the law of large numbers*. These conceptions of the uncertain chance of the single event but of the regularized probability of a group of events are extremely valuable for the social scientist because he deals with such a multiplicity of causes that he can seldom arrive at that certainty of prediction which is attainable in the simpler natural sciences. It is an important intellectual achievement for the student to realize that, with respect to most social events and processes, he must speak in terms of probabilities rather than in terms of certainties and absolutes.

There are many illustrations of the law of large numbers among

common social events. Perhaps the simplest is death. There is nothing more certain than that every individual will die, just as certain as that a coin tossed into the air will come down a head or a tail. But just when any particular person will die is impossible of prediction. This is because there are too many factors affecting the individual result for the mind to follow the action of all of them either singly or collectively. There are a multitude of contingencies and apparently accidental circumstances which may prove highly important. Nevertheless, the demographer can discover, by careful counting, how many per thousand of a given population of each age class and sex die each twelvemonth, and thus arrive at *the law of mortality*. This law does not enable him to tell when any one person will die, any more than the mathematician can tell how any one coin will fall. But the law works with sufficient accuracy for a group of 10,000 or more so that insurance companies can carry on their business with great security, knowing in advance about how many persons of different sex and age groups will die each year.

About a century ago certain statisticians discovered that the number of crimes committed in Paris was nearly the same from year to year. They called this "the budget of crime," implying that there was a rather definite amount of crime that must be committed each year, social conditions and human nature being what they were. They looked upon such regularities in statistical frequencies as "social laws," and were troubled by the question whether such laws exert any compulsion over the will of the individual. Subsequent study has shown that there is a similar regularity in all sorts of events which depend on the willed behavior of individuals, such as marriages, births, divorces, and suicides. Even unintentional events, such as automobile accidents, mis-addressed, or unstamped letters, also show a remarkable regularity from one year to the next. But none of these regularities is capable of exerting any compulsion over individual behavior. They are merely descriptions of what is going on in the social group.

In all these cases, however, there are certain major causes, psychological and sociological, which can be discovered by careful analysis and comparison. They are the causes affecting all or nearly all the individuals of the group considered and they account for the statistical regularity of the events. The special

circumstances affecting each individual give to his behavior its unpredictable character. Once the major causes are discovered, we are in a position to understand, and usually to alter, the statistical regularity. Just as the death rate has slowly fallen during recent decades in consequence of our increasing knowledge of physiology and hygiene, so scientific analysis has increased our control of industrial accidents, fires, and burglaries. The birth rate is being rapidly subjected to control; in the future, we may dream, even war and the operations of human greed may be partially regulated.

THE EVOLUTIONARY VIEW

Meaning of Evolution. If then we must choose between some form of evolutionism and some form of creationism in all our interpretations of nature and life, it seems advisable to clarify somewhat further the meaning of the term evolution. This term is popularly thought to mean the theory that man is descended from monkeys or from some similar mammalian ancestor. While it is true that some such theory is a part of a general evolutionary viewpoint, it is a gross error to limit one's conception of evolution to that doctrine. This common limitation of the meaning of evolution is historically explained by the fact that Darwin's demonstration that man was connected with the animal world caused such opposition in religious circles. Many of those who had been taught that man could be accounted for only by an act of special creation felt that the admission of his descent from animals by natural processes involved the surrender of essential elements of religious faith. Having once believed implicitly that man was created by God in His own image, as the highest example of His handiwork and as the special object of Divine solicitude, they felt that the evolutionary view belittled man by making him brutish and essentially physical in nature, rather than angelic and essentially spiritual. But we can now see most clearly that man's real nature is not affected in the slightest degree by any theories regarding his origin. He is what he is, no more and no less. Moreover, we can find out what his real nature is only by a careful study of his behavior in the past and in the present. But while biological evolution is a part of evolution, it is only a part.

In its simplest meaning, evolution signifies an unfolding or de-

velopment whereby any given phase of the cosmos is derived from the preceding phases. It thus implies a genetic viewpoint. There is the evolution of the solar system; the evolution of the earth through geological ages; the evolution of plant and animal forms; the evolution of the nervous system and associated therewith the evolution of mind; the evolution of the family or any other social institution; and the evolution of inventions, of science, of philosophy, of art, or what not. The evolutionary viewpoint extends to every field of scientific investigation and carries with it the inquiry into those cause and effect relationships whereby things in nature may be accounted for in scientific terms. The primary aim of evolutionism is to describe in realistic terms how things came about, how they came to be what they are, both as regards the steps or stages in their development and as regards the processes involved. Everything that happens on our planet is thus viewed as a part of the natural history of the planet itself.

Man himself is a product of earth forces and conditions. He is, consequently, adapted by his physical powers, his physiological processes, his senses, and his mental capacities for life on the earth. There may be other planets much like the earth, but in so far as they differ from the earth, chemically and physically, one may be sure that the highest forms of life they sustain also differ, for all living things must be adapted to the essential conditions of their existence. Man appeared on the globe only after a long period of preparation for life and additional millions of years of evolution of living things. He has been here some hundreds of thousands of years and seems likely to remain for millions yet to come. During this long sojourn his life will be intimately intertwined with all those natural conditions and forces which the physicist, chemist, biologist, psychologist, and social scientist study. In the same manner society, including every form of social organization and institution, is considered a part of the natural history of man and his dwelling place, the earth. The social sciences set for themselves the problem of determining the stages and the processes whereby these institutions came about and how they have served human needs and purposes.

Creative Evolution. Evolutionary theory as a genetic view holds that all the varied forms of the animate and inanimate worlds have been derived from the simplest forms of matter and energy by purely natural processes. This means that the evolu-

tionary processes are themselves creative. Evidences of this creative activity in nature are seen in a multitude of chemical reactions, in the evolution of new and complex plant and animal forms from more simple ones, in the evolution of life, of man, of man's mental capacities, and of social organization and institutions. Take, for example, such a simple fact as the formation of water by the combination of two atoms of hydrogen gas (H_2) with an atom of oxygen (O). One could not possibly guess that these two gases combined as H_2O would form a liquid with the marvelous qualities of water. Is this not a miracle? It is indeed one of the many miracles of nature, only a less marvelous one than many others. How can one explain it? In the only way in which the scientist can explain anything, namely, that this is the nature of hydrogen and oxygen gases when combined in the proportion of two to one. They always and inevitably act that way; they must do so because it is their very nature to do so. This is about as far as the scientist can go. He may soon go one step further and tell us in detail how the atom is built up, but this will not alter the essential nature of his explanation.

Whatever the ultimate nature of matter, it is formed into relatively simple structures called atoms each with definite properties peculiar to itself. When these are combined they act in definite ways due to their inherent nature. Thus are created the infinite variety of chemical compounds with varying properties. One of these compounds manifests the properties called life, and through its infinite variety of interaction with earth conditions has evolved into the whole of the plant and animal kingdoms. Thus nature is creative. The philosopher talks about "creative evolution," or "emergent evolution," but he cannot, in fact, say anything more truly realistic and genuinely descriptive than to say that all these marvels of nature are the spontaneous and inevitable expression of the potentialities contained in the original elements in their infinite combinations and reactions.

We may here once more recall our two fundamental philosophies. The progress of thought makes it necessary for the scientific view to take account of creative evolution and for the theological view to take account of the universality of natural law. The two viewpoints thus have much in common. Theistic creationism seeks to explain the beginnings of things by assuming a Creator, but creative evolutionism holds (1) that ultimate

origins must have occurred infinite ages ago and hence are inconceivable, and (2) that they are of no significance for the here and now. Popular thought insists on conceiving creation as taking place in one grand brief drama, and as being thereupon finished and replaced by the operation of natural law. It is more difficult but truer to the known facts to think of creation as continuous and as taking the myriad forms of evolutionary change.

Evolution and Progress. In this connection we may take note of the popular idea that evolution means progressive change. Evolution does imply change, but it is not necessarily progressive change. In order to be progressive a change must be directed toward some human goal. But we cannot be certain that many of the changes in natural phenomena have any relation to human ideals of betterment. Many of them are obviously not thus related. We do not even know whether, or to what extent, social change in its long-time cycles is directed toward an increase in happiness. Man would like to make social evolution conform to his desire for a better life, but thus far he has known so little about the fundamental factors in social life that he has not known how to control them in any definite way. His life on the globe and all his organizations and institutions are in a ceaseless process of change, but no man can foresee what the outcome will be. There is no ground whatever for the popular assumption that, because society is evolving, it must be evolving toward some great goal. It is wholly naïve for anyone to assume that he can foresee the final, or even the distant, outcome of the processes of social evolution. These seem very likely to go on for millions of years during which in all probability one era of high culture will succeed another with intervening periods of decadence and retrogression. But whatever changes may occur will be parts of the general process of world evolution. Just now, and for some centuries in the past, western civilization is and has been in a progressive phase, at least on its material side, but there are many who prophesy that the curve of evolution will turn downward within a few centuries. This, of course, is a guess. We are now rapidly acquiring knowledge of social processes and it is not impossible we may learn how to prevent the recurrence of civilization's collapse.

Evolution and Adjustment. It is best, therefore, to conceive of evolution as the universal and continual change throughout nature due to the constant interaction of the energies contained

in different bodies. The outcome of evolution is the adjustment or adaptation of one body to another, a state which Herbert Spencer called an equilibration of energies. If water flows to lower levels, if the hot iron radiates its heat to surrounding bodies, and if electricity flows from high to low potentials, so every living thing, in its intake and release of energy, tends toward an adjustment or adaptation to its surrounding conditions. This does not mean, however, that plant and animal forms are always evolving toward greater and greater complexity. The degeneration into barnacle and parasite is as much a part of the evolutionary process as is the evolution of man from some apelike ancestor. The same is true of social organizations and institutions. If one reflects on the changes in the social life of any great community, such as Athens, Rome, or the "dead cities" of the Zuyder Zee, he will note that the organization and institutions grow more complex for a long time and then fall into decay. There seems to be no general and universal law of evolution to the effect that everything moves from simple to complex forms and from homogeneous to heterogeneous structures and relations. There is, however, in all living nature, including society, a complex interaction of life and its environment which tends toward an adjustment of interacting forms and relationships to each other.

This means that some plants, animals, men, and social institutions are adapted to simple, while others are adapted to complex, conditions of living. This is the most marvelous feature of all animate nature, including man and society. One may reflect not only on the way different kinds of plants, insects, fishes, birds, and quadrupeds are fitted to their environments, but upon the way different races and their social customs are likewise fitted to preserve and perpetuate life in their respective habitats. We shall see that, just as animals are subjected to a struggle for existence which compels them to be fit, that is, adapted to their special conditions of life, so social customs, which are society's modes of adapting itself to its habitat, must serve their purposes, or be superseded by better ones. If they do not serve, they perish, and the people who practice them perish with them. There is thus a natural basis for rules of right living for the individual and for the social group as a whole.

There is thus a constant tendency toward an equilibrium which is never fully attained. We may, in fact, very profitably con-

ceive social life as a highly complex scheme of relationships rendered more or less stable by law, morals, education, religion, and other institutions, but subject to constant variation due to the geographical, biological, psychological, and historical forces acting upon it. Social life is a moving equilibrium. Cities grow and decay, civilizations rise and fall, strong and powerful nations or individuals communicate energy and stimulus to those about them, all in consequence of the endless and infinitely varied combinations and interactions of the energies of living beings. Evolution, therefore, assumes not merely the universality and uniformity of causation, but a multifarious interaction of all related parts of the world—animate and inanimate—producing ever new combinations of matter and energy and always tending toward an equilibration of energy or a mutual adaptation of parts—but never actually realizing it.

Evolution as the Scientific Viewpoint. Evolutionism as thus conceived becomes synonymous with the scientific viewpoint. It sees everywhere the operation of cause and effect in the regular and uniform fashion which we call natural laws. In its broadest connotation, it is synonymous with the theory of the universal, regular, and consistent working of cause and effect in a vast genetic process which links all phenomena of the solar system—sun, earth, man, and society—in an endless but self-sufficient chain. In the social sciences evolutionism is synonymous with the natural history view of man and of society. It conceives man and all his social groupings as parts of a far-reaching cosmic process which has neither beginning nor end, but which operates under the universal principle of efficient causation. This view might also conceivably lead to a pessimistic outlook, as in the minds of many thinkers it has. The final destiny of man and of all his social creations is seen to be involved inextricably with the evolution of a solar system which is discovered to be but an infinitesimal particle of a vast universe, which in turn is but one among many. But such speculations do not detain the average mind for long, in view of the hopefully optimistic principle which the evolutionary theory posits, namely, that all things have their causes which can be known, and, once causes are known, results can be either controlled or adjusted to in such fashion as to enhance the values of human life.

Evolution as an Optimistic View. It should be made clear that the natural laws which social science discovers are not inex-

orable and unalterable *proscriptions*; they are rather the *descriptions* of the regularities in our observations of phenomena at a given time and place. On them as a basis, prediction of what will occur may be made. Thus the demographer can plot a curve showing the law of mortality among males in New York City or elsewhere; he can tell us with considerable accuracy how many males of different ages will die during the coming year; but this law can be altered by a more complete observance of the rules of health and hygiene. It must be admitted that man, even with the most perfect knowledge he seems likely to attain cannot hope to control completely his own destiny. But this does not alter the fundamental fact that the discovery of the laws of nature, of mental activity, and of social life constitutes the principal means for the improvement of man's lot.

As Professor M. C. Otto ⁵ says:

It may still be contended that man's range of influence is very limited and that changes are constantly taking place on earth and beyond it which may sooner or later frustrate all his efforts. This must be conceded. When we remember the animal dynasties that have gone to their doom, or consider the destiny of suns and moons and stars, we cannot engage upon the so-called "mastery of nature" with the confidence and buoyancy of those who were younger in knowledge. There is much disclosed by science which "shadows forth," as some one has said, "the heartless voids and immensities of the universe, and thus stabs us from behind with the thought of annihilation." Still, whether the run of the human drama is to be long or short, it promises to be long enough before the curtain falls, if fall it must, for the decrease of suffering and the increase of happiness; long enough to win great numbers of men from acquisitive scheming to creative endeavor, and to make beauty far more pervasive of life than it is. And that is what matters.

One of the great English philosophers of the seventeenth century, Thomas Hobbes, said that man's life in a state of nature was, "solitary, poor, nasty, brutish, and short." The evolutionary viewpoint brings within our vision the prospect of making human life sociable, comfortable, clean, splendidly, even beautifully, human, and long.

GREAT STEPS IN EVOLUTION

The Theory of Universal Filiation. During the past century it has become increasingly clear that there is a natural sequence

⁵ *Natural Laws and Human Hopes*, Henry Holt and Co., 1926, pp. 81-82.

in the phenomena attending the evolution of our world. To this sequence the American philosopher and sociologist, Lester F. Ward,⁶ gave the name "filiation." The theory implied by this term is that, in the evolution of the world, physical and chemical phenomena came first and were followed, after a great length of time, by manifestations of life. Along with the evolution of living things from protozoa to mammals went the development of nervous systems, which furnished a basis for an increasing range and variety of behavior. Man appeared as a product of this organic evolution after it had been going on for millions of years and a foundation had been laid for the creative evolution of his marvelous brain and its psychic powers.

Meanwhile, social phenomena, due to the tendency of animals to live in groups, had appeared. Finally, as the highest and ultimate product of evolutionary processes, came culture, or the group habits by means of which associations of men preserve and perpetuate themselves. In the view of the French philosopher, Auguste Comte, the English philosopher, Herbert Spencer, and L. F. Ward, this genetic connection of all types of events lays the basis for a similar filiation of the sciences, as follows: astronomy, physics, chemistry, biology (including psychology), and sociology.

We may present a simple outline of these great steps in evolution in the following table, which should be read from the bottom up:

PHENOMENA	ESSENTIAL BASIS	PRODUCTS
5. Cultural	The psycho-social capacity to pass the accumulating products of social activity to succeeding generations.	Language and literature, technical and fine arts, customs, folkways, institutions.
4. Social	The psychic capacity for interstimulation and response and the gregarious instinct.	Life in groups, both animal and human.
3. Psychic	The organic properties of nervous structures.	Behavior.
2. Organic	The physico-chemical properties of protoplasm.	Plants and animals.
1. Physico-Chemical	Properties of the atoms or elements	The material universe.

⁶ *Pure Sociology*, The Macmillan Co., 1903, pp. 65 *et seq.*

There are thus five "worlds" of scientific research. Each is broader and more elementary than the one above it. Each gives rise to the one above it just as each rests on the one below. As we move up the list, the phenomena become less simple and less general, or more complex and more specific. (1) At the bottom are the phenomena of the physico-chemical world, the world of electrons, protons, chemical elements, chemical compounds, electricity, the earth, solar systems, and universes. (2) The highest product of physico-chemical activities is found in the protoplasmic substance which has the properties which we call life. Organic or living structures have evolved from very simple beginnings to hundreds of thousands of different plant and animal forms now living, not to mention the myriads already extinct.

(3) All organisms are extremely delicate in comparison with the forces and bodies of inanimate nature, so that their preservation was possible only by the evolution of means whereby they could adjust themselves more or less perfectly to the ever-changing world about them. Among the properties of living things, therefore, is the capacity to respond to stimulus, a capacity based on nerve and brain tissues. These, in turn, by their development and differentiation, give rise to those mental phenomena which have to do with the adjustment of the organism to its environment by means of adapted behavioristic responses. These may be said to range all the way from the tropistic reactions of plants and animals, through the reflexes and instincts to the closely reasoned researches of the scientist and the æsthetic creations of poet, musician, painter, and sculptor.

(4) One of the primary ways in which psychic powers were utilized for making organic life more successful was the development of the instinct to live together in close association with organisms of like kind. This gave rise to a great variety of animal groupings, such as schools of fishes and porpoises; flocks of chickens, ducks, and geese; colonies of penguins, seals, and beavers; swarms of bees and wasps; herds of horses, buffaloes, and elephants; hordes of baboons, and so on. We may call this tendency to stay together in groups the herd, or gregarious, instinct. Members of such groups are endowed with what Professor F. H. Giddings has called the capacity for interstimulation and response.⁷ Being creatures of like psycho-physical structures they have an inherent

⁷ *Studies in the Theory of Human Society*, The Macmillan Co., pp. 257-259.

tendency to respond in like ways to the same stimulus. Among them arise, therefore, the essentially social phenomena of mutual aid, leadership and following, communication, and communal life.

(5) Psycho-social phenomena would have ended here had it not been for man's extraordinary brain development. In consequence of this, he carried evolution one vast step further, namely, to the creation of culture. It is often said that man is the only tool-making animal. The tool is, indeed, the symbol at once of man's distinct differentiation from the other higher mammals and of the culture which is his unique achievement. Under culture is included everything which enters into what is called the social heritage, that is, the accumulated possessions of the group from their tools, ideas of property, and modes of making a living, to their language and religion, their moral code, family and political institutions.

We have said that, as we move from the bottom toward the top of the evolutionary scale, we move from the more general, simple, and inclusive to the more concrete, complex, and exclusive, and that each world rests on its predecessor. Whether or not this order represents the actual order of evolution, it represents both a logical arrangement of the various worlds and also their actual dependence. It connects all phenomena in a real filiation or stream of events. Moreover, it should be noted that each order of phenomena is implicit in and permeates its successor. There is a sense in which each order may be reduced to its predecessor. Thus organic phenomena are at bottom physical and chemical in nature; so also psychic phenomena, being universal in the animal world, are conceived to be reducible to organic and hence to physico-chemical processes. It must be emphasized, however, that the complete demonstration that life and mind are thus reducible is still awaited, and until such demonstration is completed even the convinced evolutionist must maintain at least that degree of skepticism which keeps the mind open to receive any unexpected new evidence or solution.

We may thus say that the basic sciences are the physical sciences of astronomy, geology, physics, and chemistry. Next to them and resting squarely upon them is biology, having as its connecting link, bio-chemistry. Then come physiological psychology, psychology, and social psychology. The latter studies

the distinctly social phenomena, or the basis and processes of group formation, cohesion, and interaction. It is basic to the understanding of the processes involved in the various disciplines which study different phases of cultural activities, such as economics, politics, linguistics, and ethnology. From this viewpoint sociology may be viewed as the synthetic social science seeking a generalized view of social life, social forms or structures, social processes, and cultural achievement. In its applied form it seeks an estimate or evaluation of these processes and achievements in terms of human hopes and aspirations. It thus sets as its goal an understanding of the conditions and laws of progress.

THEORIES OF THE ORIGIN OF LIFE

The Problem of Origins. It is possible to say to-day that the only problems with respect to which a creationist theory is now applied are the four problems of the origin of the world, the origin of life, the origin of man, and the origin of mind. We cannot undertake a full discussion of all of these here; but it seems best to discuss briefly the first two. All of them are more or less mysterious, and it has been characteristic of man that he has accounted for mysterious phenomena by attributing them to the activities of spirits of one kind or another. As we have seen, this is the application of the theological theory, a theory that has been superseded with respect to all problems except these four. Three important observations, however, may be made with respect to the first. (1) The ultimate beginning is inconceivably distant in time. We cannot imagine a time when there was not, in imagination, a previous time. It is, therefore, impossible to arrive at the moment of creation. If we were able to travel back in thought toward the beginning at the speed of light it would take an infinite time—an unending time—to arrive there. (2) The actual beginnings of the world cannot be conceived even in imagination. We cannot imagine a universe springing into existence without some antecedent. (3) When we try to solve this difficulty by assuming a God, we at once confess our ignorance and also fall back on the naïve tradition of the race. This is no real solution, for it is even more difficult to account for a God capable of creating the universe than it is to account for the universe itself. We posit a greater difficulty in order to solve a lesser one. The fact is that the origin of the universe is an insoluble mystery.

Older Theories of Life's Origin. The problem of the origin of life is, however, more realistic and tangible than the problem of the beginning of things in general. Life is still, however, a great deal of a mystery. As we have seen, the processes of natural evolution are remarkably creative, producing an endless series of new and marvelous combinations. If life is merely a product of these natural physico-chemical processes, it must rank as one of the most marvelous in the repertory of nature. Even if life should some day be created in the laboratory, we should not cease to marvel at it. It is indeed so marvelous that creationism seems to popular thought a natural and plausible explanation. But this is no reason why the creationist view should detain us. So long as we accept that popular view we are precluded from making inquiry into the physico-chemical basis of life. Thus, ignorance and superstition would support each other. Moreover, we already know that living substance has definite physico-chemical properties.

Another early theory of the origin of life accepted for many centuries is called "spontaneous generation." This is a sort of chance-creationist theory. According to it, life, like Topsy, just happened. The reason for this theory was the mysterious appearance of bugs, larvæ, worms, and other small forms of life in places where no life had previously been. The theory of Aristotle was that new forms of life spring from decaying matter, and Aristotle was the undisputed authority in the middle ages. Van Helmont, in the sixteenth century, held, for example, that old rags and cheese in a bureau drawer would spontaneously generate mice. A seventeenth-century writer asserted that he who doubted that worms spontaneously generate in cheese and timber, beetles and wasps in manure, or maggots in decaying meat, must doubt "reason, sense, and experience. If he doubts of this let him go to Egypt and there he will find the fields swarming with mice, begot of the mud of Nylus, to the great calamity of the inhabitants."⁸

It was, however, about this time that an Italian of inquisitive mind, Francesco Redi, definitely proved (1668) by a great variety of ingenious experiments that maggots would not develop in meat, if flies were carefully excluded from it. Simultaneously, one of the greatest microscopists of all time, Antony von Leuwenhoek (1632-1723), having greatly improved the simple microscope,

⁸ Quoted by T. J. Parker, *Lessons in Elementary Biology*, The Macmillan Co., n. d.

showed that weevils, then commonly supposed to arise from the wheat in which they appeared, were grubs hatched from the eggs of insects. He also unraveled the life history of the lowly flea, which at that time was supposed to arise mysteriously from sand, dust, or other substances. In like manner, he showed how minute animalcules might be carried on particles of dust blown about by the winds, only to manifest themselves later in unexpected forms in the rain water of pools and cisterns.

Thus, the microscope put the problem of the origin of life on an entirely new plane. The world was seen to be swarming with forms of life so small that they had previously been wholly unsuspected. It was seen that bacteria and other microscopic bodies developed even in vessels carefully screened from flies. It remained for the great French scientist, Louis Pasteur (1822-1895) to make himself immortal by proving, about 1866, that, once the contents of hermetically sealed jars are thoroughly sterilized by heating, no life thereafter will appear in them. In other words, he killed the spores or germs of life and prevented new ones from entering and thus produced perfectly sterile substances, that is, substances wholly free from any form of living thing. This put a definite end to the theory of abiogenesis, or the spontaneous generation of the living from non-living, as it had been held since the days of Aristotle, and led to the substitution of the doctrine, *omne vivum e vivo*, or "all life from life."

Other Theories. A quite different theory, first advanced by Richter in 1865, expanded by Cohn in 1871, and even adopted by the great Arrhenius, is known as the *Star-Dust* or *Pan-spermia* theory. The essence of this theory was that minute particles of matter—star-dust—could carry living spores or germs from the stars on rays of light. Such transit would take twenty days from Mars and 9,000 years from the nearest stellar system. Closely related was the *Meteorite* theory advanced by Lord Kelvin in 1871 and adopted by the German philosopher, H. von Helmholtz. According to this the germs of life could be transported to earth by meteors, but the astronomers pointed out that it would take 60,000,000 years for a meteor to travel from the nearest star. Moreover, such theories were no final solution of the problem. As Professor Schaefer⁹ pointed out, "This only banishes the

⁹ E. A. Schaefer, "Life: Its Nature, Origin and Maintenance," Presidential Address, British Assn. for Advancement of Science, *Annual Report*, Smithsonian Institution, 1912, pp. 493-525.

question of origin to some inconvenient corner of the universe." Even supposing life to have originated on some other planet, we still want to know how it originated there.

The Physico-Chemical Theory. We are thus forced to return once more to the question whether all life does, or originally did, come from life. If so, then life had a single beginning and every subsequent form must be traced back thereto. Moreover, this beginning must have been a miraculous act of supernatural creation, otherwise life would have sprung from non-living substances. The evolutionary view, as a complete view, would thus be defeated, and this would be unacceptable to the scientist. But there is rapidly increasing evidence that the evolutionary view is sound. Life may well have originated in many times and places; it may be originating now.

To understand clearly the physico-chemical theory, we must, in the first place, beware of the deception that lingers in the term, "origin of life." This seems to imply that life itself is a thing, whereas it is only a trait or attribute of certain complex chemical combinations under definite physical conditions. Life is not a separable entity, but that mode of behavior, or those properties, which lead us to say that a thing is "alive." This behavior or these properties are manifested only so long as a more or less definite and fairly stable set of physico-chemical conditions continues. If we alter these conditions, we alter the properties of the chemical combinations and life ceases. Thus death, which means "not alive," is a state which may be induced in any living thing by either physical or chemical means. An organism may be crushed or poisoned. It is astonishing how effective a very minute quantity of poisonous matter is in producing death in even the largest organisms. But, when we conceive the organism as a relatively stable unity of diverse chemical substances interacting with each other and with the environment, we can see that a poisonous element might upset that delicate chemical balance within the organism which constitutes life.

In the second place, we must conceive the chemical elements, electrons and atoms, to be built up into an enormous variety of compounds, among which are organic colloids marked by a state of delicate and wavering balance. The most marvelous of these colloidal combinations is the protoplasm having the properties of life. Whether living protoplasm can actually be built

up in the laboratory is still in doubt, but colloids to which chlorophyll has been added have shown capacity to carry on processes of assimilation or growth, utilizing the energy of the sun.¹⁰ The bio-chemist is able to tell the exact chemical changes which occur in the activities of living structures. At the Rockefeller Institute for Medical Research, living tissues, such as parts of liver, kidney, and skin, have been kept alive in suitable solutions, and quite apart from the animals to which they belonged, for more than twenty years. We know that sickness and death are due to chemical changes in the body and can be warded off by proper methods. The evidence thus accumulates that life is at bottom the functioning of physico-chemical structures of delicate but definite composition. At the present rate of progress, we shall soon know much more about these structures and their *modus operandi*. Moreover, whether or not the bio-chemist is ever able fully to unravel the mystery of life, his viewpoint and methods will reveal all we shall ever know about living substances.

But let us not suppose that the problem of actually reproducing a living *organism* in the laboratory will be easily solved. The fundamental properties of living things are: (1) motility, often in very slight degree; (2) response to stimulus, also often very slightly developed, as in plants, though much here depends on the stimulus; (3) power of assimilation and disassimilation; (4) power of specific growth, that is, a tendency to grow according to a definite pattern; (5) the power of reproduction; and (6) the power of integrated or coördinated activities, that is, a unification of behavior in the organism as a whole.¹¹ It should be clear that, if chemical structures having the first three of these properties are manufactured in the laboratory—and such structures have already been closely approached—we may still be a long way from structures possessing the last three properties.

SUMMARY

In this introductory chapter we have tried to develop a number of basic points. First: We emphasized the dangers and pit-

¹⁰ Benj. M. Moore, *The Origin and Nature of Life*, No. 63 in Home Univ. Library, Henry Holt and Co., 1913.

¹¹ Cf. R. S. Lillie, *Protoplasmic Action and Nervous Action*, Univ. of Chicago Press, 1923, especially Chapters i, ii, and iii; R. S. Lull, *The Ways of Life*, Yale Univ. Press, 1925, especially Part I; and George W. Crile, *A Bipolar Theory of Living Processes*, The Macmillan Co., 1926, Part II.

falls of emotional and sentimental bias in the study of social life. There is a natural and powerful conservatism in every social organization. Once a social group has arrived at a fairly satisfactory adjustment to its life conditions, it inculcates in most of its members a profound and unquestioning acceptance of the ideals and standards of judgment and behavior of the group and a deep emotional attachment to established institutions. The average man the world over feels, with instant and impervious conviction, that his self-respect and his claim on the respect of others require him to hold firmly what his social group has taught him. In this way, popular sentiments constitute a firm bulwark against radical changes. It sometimes happens, as a reaction against popular complacency, that students, when they come to realize that traditional modes of thought and feeling are thus deeply implanted in the average mind, think it necessary for them to show their intellectual freedom and superiority by an obvious disdain of all that is traditional and an uncritical and often vociferous acceptance of whatever savors of the new or the radical. There is thus a bias of radicalism, as well as a bias of conservatism.¹²

Second: We have tried to show the validity and even necessity of the scientific or evolutionary view. It is only on the assumption that social life, like all other parts of the knowable universe, operates under the principles of natural causation that we can make progress in an understanding of it. We have made the evolutionary and the scientific views virtually synonymous because science seeks to discover the coexistence and sequence of events. It assumes that all the forces and bodies now in existence will be the sole sources of all the forces and bodies of the future, and it wants to know as much as possible about the order in which changes occur. It asks, "What conditions produced these events?" All science is thus genetic in last analysis, the social sciences no less than others.

Third: We have given a brief indication of the major steps in the process of world evolution. While the different groups of scientists study special kinds of phenomena, the evolutionary view, as a world view, conceives all these phenomena to be interdependent in a genetic way. The more complex are conceived

¹² See A. B. Wolfe, *Conservatism, Radicalism, and Scientific Method. An Essay on Social Attitudes*, The Macmillan Co., 1923.

as having been derived from the more simple. Living protoplasm, nervous structures, society, and culture are the latest and most marvelous creations of the never-ending processes of world evolution. We have sketched these stages in outline as a background for the succeeding chapters.

Fourth: We have given some attention to the problem of the origin and nature of life, because the problems of the origin and nature of man and of mind are closely related thereto. That is, the scientific viewpoint requires consistency in the answer to fundamental questions.

Fifth: In our study of the evolutionary view, we called attention to the tendency of all things in nature to become adjusted to their environment. It is no exaggeration to say that the best single key to an understanding of the problems of life, whether animal or human, individual or social, is the idea of adjustment. Even the internal physiological processes are due to constant stimulus and response, whereby the parts of the organism are kept in mutual adjustment. Mind, or the functioning of nervous structures, leads to behavior which serves to adjust the organism to its external environment. In these respects man is like other animate objects. Moreover, a society, viewed as a whole, develops modes of behavior, both for the adjustment of the internal relations of its members, and for its adjustment as a unit to its natural and political environments. It is the aim of the social scientist, therefore, to study the means whereby a society maintains and perpetuates itself by developing economic, political, familial, ethical, and religious institutions, in adjustment with its ever-changing circumstances.

Sixth: Finally, we have tried to make it clear that the scientific view is in no way inimical to what is true and of most worth in human life. To view life and man as parts of a natural world order does not alter their real nature. The scientific view is in fact an effort to understand things as they really are. As the new astronomy replaced the old, so better understanding of human nature and social order are gradually winning acceptance. These new views are essentially optimistic, because they hold out the prospect of eventually improving human nature and the social relations. There is no conflict between the evolutionary or scientific view and the attainment of the true, the good, and the beautiful in larger measure. Indeed, we may say that such

attainment is possible only through the advancement of that true understanding which more perfect knowledge makes possible.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. In what respects are the oriental and the occidental views of nature, man, and the purposes of life similar? different?
2. Does the acceptance of the evolutionary as over against the creationist view alter the purposes of human and social life?
3. How does the advanced theologian reconcile his views with the theory of a self-regulating universe, or universal natural law?
4. Is it possible for the scientist to offer a "scientific explanation" of the beginnings of all things?
5. Would the artificial production of living protoplasm in the laboratory be of any practical use to man?
6. Does the fact that we do not observe the origin of living from non-living substance refute the theory of a naturalistic origin of life?
7. What does Crile (Ref. p. 39) mean by the "bipolar" theory?
8. If cause and effect are universal, what becomes of freedom of the will?
9. Could man achieve a satisfactory adjustment to nature and to his fellow men, if natural law were not universal?
10. Give an acceptable definition of evolution.

SUGGESTED READINGS

- GEDDES and THOMSON: *Evolution*, Chaps. 2 and 3, pp. 40-111.
- LULL and others: *Evolution of the Earth and Its Inhabitants*, Chap. 3, "Origin of Life," by L. L. Woodruff. Chap. 4, "The Pulse of Life," by R. S. Lull.
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CHAPTER II

THE ORIGIN AND ANTIQUITY OF MAN

CREATIONIST VERSUS EVOLUTIONARY VIEW

Creation Myths. Regarding the origin of the world, Professor Ludwig Hopf¹ finds that there are two general theories, which correspond to the two fundamental philosophies noted in the preceding chapter. Some say, "The world was created"; but others say, "The world has grown." Both of these beliefs are found among primitive savages and among the most advanced peoples. There are the same two theories regarding the origin of man.

It is of great interest to discover that the creation story as presented in its varied forms in the Book of Genesis is paralleled by the higher types of primitive creation myths wherein the Creator brings into existence both the world and man. In some of these the deity is considered "too sublime to conduct the work of creation personally and has consequently entrusted it to his only son." Among many Indian tribes the deity, from whom man descended, is conceived as anthropomorphous, being sometimes called the "second man," and frequently conceived in the human form. Thus, "the Caribbeans maintain that the first man, Loguo, descended from heaven and returned thither after creating the world and man." The Algonquins represent their principal god "as the progenitor of the human race and creator of the second world, the first having been destroyed by evil spirits." Not infrequently the first man is regarded as the son of the supreme spirit. In fact, there are few races of men that have not conceived themselves to have been more or less directly descended from one or other of their creation deities. The Mosaic tradition is similar to theories found in East Africa, Java, North America, and among the Arabs and Mohammedans, which hold that man was created out of clay, earth, or stone. There are a multitude of such myths all equally naïve and poetical; all untrue, but yet revealing how man in his early ignorance invented gods in his own image in order to account for himself and the world in which he lived.

¹ *The Human Species Considered from the Standpoints of Comparative Anatomy, Physiology, Pathology, and Bacteriology*, Longmans, Green and Co., 1909.

Evolution Myths. Over against these are the theories which have sought to explain the world as the result of material, mechanical processes. These theories are extraordinarily diverse. Some hold that man has developed from plants. "The Leni Lenape think that the Supreme Spirit formed the first man and woman out of a tree stump." The Sioux Indians thought men had stood for several generations like trees with their feet rooted in the ground, until released by a great snake gnawing through the roots. Then there are those who believed that men developed out of animals. An Australian tribe, for example, believed man originated from the black lizard. These theories of man's development from plants or animals are closely connected with primitive totemistic religions in which man's kinship with plant and animal deities is believed to be intimate. In addition, there are still other equally naïve theories. Certain tribes of India hold that out of a swelling on the hand of Kalio Adeo issued the twelve families of the Gonds. In Madagascar the first human being, a man, is thought of as already in existence; from an abscess on his left leg woman originated. Certain Greenland Eskimos believe that the first man was made from clay and that the first woman sprung from his thumb. The evolution myths to account for man's origin are obviously as fantastic as the creation stories.²

The Modern Evolutionary Theory. The modern evolutionary theory finds the explanation of man's origin in his development from lower animal forms. Man is thus conceived as the culminating achievement in a long and sublime process of organic evolution, which includes the entire plant and animal worlds. This viewpoint was impressed upon the scientific world by the writings of Darwin, Spencer, and Huxley and has now come to be universally accepted among men of scientific training. On account of obvious similarities in anatomical structure, it was inevitable that man should be considered intimately related to the ape family. This does not mean that man is descended from any existing ape. It does mean, however, that if one traces back the ancestral tree far enough, he necessarily comes to a common ancestor of man and the anthropoids. Or, stated in different terms, the higher apes are our distant cousins.

² For additional myths, see A. L. Kroeber and T. T. Waterman, *Source Book of Anthropology*, University of California Press, 1920; and J. G. Frazer, *Folk-Lore in the Old Testament*, one vol. ed., The Macmillan Co., 1923.

As classified by the zoölogist, man belongs among the *Vertebrata*, or back-boned animals. The vertebrates are variously divided into four or five classes: Fishes, Reptiles (among which may be included the Amphibians or Batrachians), Birds, and Mammals. There are many orders and sub-orders among Mammals, ranging as they do from moles and bats, through rabbits, whales, and the great variety of hoofed animals to man. The highest order among them, the Primates, is divided into two sub-orders: *Prosimia*, or the Lemurs, and *Anthropoidea*, including the monkeys, baboons, great apes, and man.

EVIDENCES OF MAN'S DESCENT

Kinds of Evidence. The basic evidences of man's descent from the animal world are of course to be found in the similarities of his bodily structures with those of other anthropoid and mammalian animal forms. To these may be added similarities of physiological reaction, embryological development, and mental behavior. We may thus classify the evidences of man's descent under the following headings: anatomical, vestigial, physiological, embryological, psychological, and paleontological.

Anatomical Evidences. The anatomical evidences are primary and voluminous. Since the publication of T. H. Huxley's *Man's Place in Nature*, in 1863, there have been many comparative anatomical studies of man and the anthropoids. These warrant the statement that the bodily structures of man and the higher apes are, bone for bone, muscle for muscle, nerve for nerve, and organ for organ, extraordinarily homologous, or similar in arrangement. This does not mean that these parts are the same in size throughout, but that all parts found in one are found in the other and in the same relative positions. The only important exceptions to this broad statement are an extra rib in certain of the apes, and a few extra muscles (said to be three only) in man, due to his erect stature. There are of course differences in shape and size of bones and muscles, but even here the similarities are notable. The teeth are the same in number and kinds, though in man the canines are reduced in size. Similarly, the brains have like parts with like arrangement. The brain surgeon has learned that knowledge gained from study of anthropoids can be directly applied to man. Even the finger-prints of man and chimpanzee are notably similar, as indeed are the patterns of skin folds and fric-

tion-ridges of the entire hand. If one is to accept the creationist theory as explaining the origin of man, then he must assume that the higher anthropoids served as models which were followed in

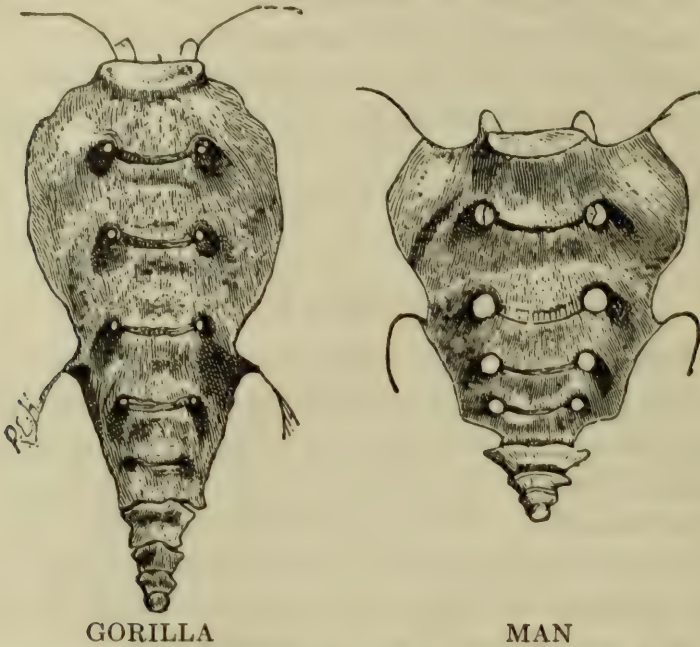


FIG. 1.—Tail bone in man and gorilla. Note the three small sections at the base. (After Romanes.)

greatest detail. In that case, they also were created but in the end rejected because the Creator saw possibilities of improvement. (Figure 1.)

Vestigial Evidences. Among the remarkable similarities of structure are those numerous ones, sometimes stated to be as many as fifty, which are vestigial in man. By vestigial is meant a structure which no longer serves any discoverable purpose in the life of the species. Such structures are likely to be greatly atrophied or under-developed. Here, for example, are included the rudimentary tail with the attendant tail muscles; the semi-lunar fold or third eyelid; muscles for moving the ears and scalp; Darwin's point on the ear; and the vermiform appendix. These structures have fallen into a state of relative undevelopment because they have no survival value in the life of so sharp-witted a creature as man.

Physiological Evidences. Among the physiological evidences are included all the similarities in bodily function. Thus, for example, pet chimpanzees are sometimes fed at the table along

with their human owners. They consume the same kinds of food as men; they are infested by the same kind of insect pests; they show similar reactions to poisons and to numerous diseases, including the venereal infections to which many other animals are immune.³ Indeed, so similar are the life processes in man, chimpanzee, and orang that these animals may be used for the greatest variety of medical and physiological experimentation with perfect assurance that the results can be applied to man. Then there are the experiments of Professor George F. Nuttall⁴ who proved by certain remarkable blood precipitation tests that man is closely related to the anthropoids and slightly related to the Old World and the New World monkeys. The serum of human blood was first injected into the blood stream of a rabbit. The blood serum of this rabbit was then injected in turn into human blood. A definite precipitate was formed. Almost as marked a precipitate was formed when the rabbit serum was added to the blood of the anthropoid apes. But when added to the blood of the eastern monkeys only a slight reaction occurred; and when added to that of the western monkeys there resulted only the faintest reaction. It was believed that this test could be used to indicate degrees of relationship.

Embryological Evidences. One of the most striking proofs of man's relation to the lower animals is furnished by embryological development. There were enunciated about 1860 two great theories of general embryological development, the recapitulation doctrine and the law of embryological parallelism. According to the first of these, the embryo, in its unfolding from egg to birth, repeats in greatly abbreviated form many of the main stages of organic evolution from the simple cell to the species to which the embryo belongs. Stated in another way, the doctrine of recapitulation holds that ontogeny (that is, the development of the individual embryo from fecundation to birth) is a recapitulation of phylogeny (that is, the organic evolution of the species to which the individual belongs). Popularly put, the doctrine states that "each individual climbs his own ancestral tree."

The other law, which is little more than a corollary of the first,

³ V. L. Kellogg, "The Biologist Speaks of Life," *Atlantic Monthly*, Vol. 127, 1921, pp. 583-593.

⁴ *Blood Immunity and Blood Relationship*, Cambridge University Press, 1904; for recent confirmation, see K. Landsteiner and C. P. Miller, Jr., "The Bloods of Man and the Anthropoid Apes," *Science*, n. s., Vol. 61, 1925, pp. 492-493.

is that there is a greater similarity between the embryos of closely related species than between adults of these species, and that the younger the embryos the greater the resemblance. Though these theories have in the past been widely accepted by embryologists, recent opinion has seriously questioned the extent to which there is any exact reproduction in the embryonic development of all the varied stages of ancestral evolution, just as it finds instances in which embryos of related species differ more than adults. Nevertheless, it still seems possible to say that in the earlier stages of development, the embryos of related species are remarkably similar; and also that there is a general, though far from minute, similarity between ontogenetic and phylogenetic development.

Like all other animals, man begins as a fertilized egg. It is, therefore, plausible that this embryo, in its development, should not only be similar in related species, but should retrace, in greatly abbreviated form, some of the outstanding stages in the evolution of lower animal forms into man. Among numerous bits of evidence may be cited the fact that the early stages of the human embryo are so similar to those of the rabbit, calf, and other mammals that only an expert can distinguish them.⁵ Professor R. S. Lull,⁶ having shown that the early stages of the embryo of man are the same as those of all metazoa, adds that "the nearer the relationship the longer are the developmental lines coincident. Thus, while the development of man and that of some early worm-like organisms diverge at a very early state in the former, those of man and the gorilla go very far abreast before coming to a parting of the ways. (Figure 2.)

"Certain embryonic stages of man, when compared with those of other mammalian forms, are highly illuminating. The formation of the notochord, of the vertebral segments that gradually replace it, of the elongated body and well-developed tail, of the five gill crevices on either side of the neck, and the primitive swellings of the forward part of the nervous system which will form the different portions of the brain, all are significant of the early vertebrate evolution, and all, in man and each of several other mammalian lines, will be very similar. Another stage shows budding limbs, later the fingers and toes, and it is not until compara-

⁵ G. H. Romanes, *Darwin and After Darwin*, Longmans, Green and Co., 1905; Ernest Haeckel, *The Evolution of Man*, D. Appleton and Co., 1887; and *Last Words on Evolution*, London, A. Owen and Co., 1906.

⁶ *The Ways of Life*, Harper and Bros., 1925, pp. 236 *et seq.*

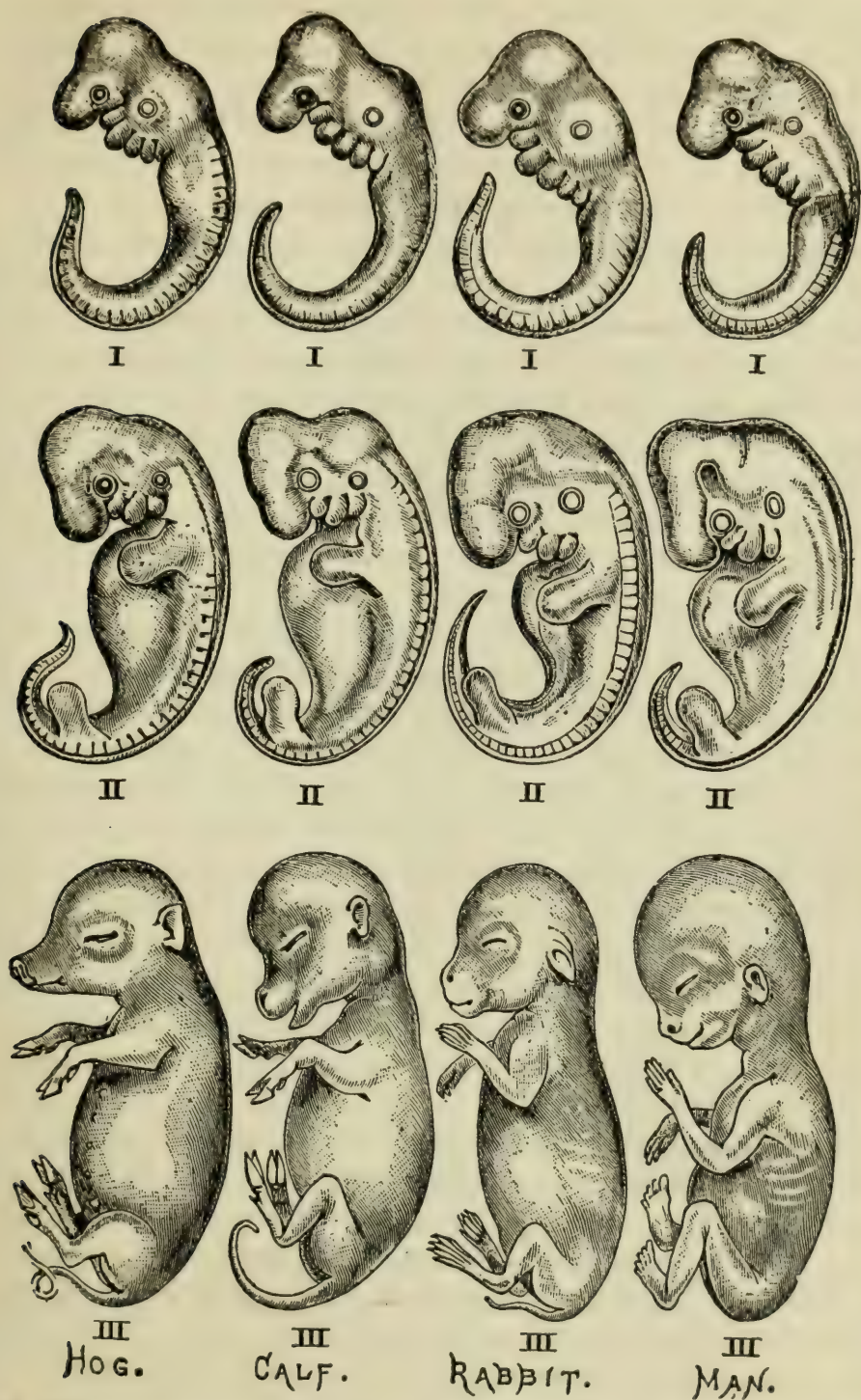


FIG. 2.—Three corresponding stages in the embryological development of four mammals. (After Romanes.)

tively late that the human embryo begins to look like a miniature man, for it passes first through a condition roughly paralleling that of a fish, an amphibian, a primitive reptile, a generalized mammal, and a primate, a creature with many likenesses to similar stages in the development of a chimpanzee or gorilla, and only toward the end does it become essentially human."

This remarkable parallelism in the embryological development of man and the anthropoids is probably the most convincing single piece of evidence of their hereditary relationship. It is almost inconceivable that two species with such remarkable similarities should not be blood relatives. An added bit of evidence is that at birth the weights of the brains of the gorilla and chimpanzee are very similar to the weight of the brain of the human infant. The great difference here is that the human brain continues its development in size and complexity of structure for twelve to twenty years after birth, whereas that of the anthropoids is close to its full development immediately after birth. Then there is the human foetal hair which covers the entire body, except soles of hands and feet, and persists to the seventh month; the gill furrows which appear in the neck at a certain stage; the growth of the limbs from the body; and the true tail which develops on the embryo only to shorten or disappear. The direction of the hair on the upper and lower arm in man and ape is similar, suggestive of perching in trees with the arms over the head; in this position the slant of the hair would shed the rain at the elbows. Similar evidence is found in the ape-like manner in which a baby holds its feet and its strong hand grasp, suggestive of the means whereby the baby gibbon or chimpanzee clings to its mother's hair.

Psychological Evidences. The psychological similarities of man and the anthropoids were stressed by Charles Darwin.⁷ He pointed out that in the manifestation of all the fundamental emotions, such as pleasure, fear, anger, and hatred, there are notable similarities in both vocal and facial expression. Animals show sympathy and capacity for self-sacrifice in the care of their young. They also, Darwin contended, manifest such intellectual traits as attention, curiosity, memory, and reason. Since then the study of animal behavior by psychologists has revealed an almost unbelievable similarity in behavior characteristics and

⁷ *Descent of Man*, 1871, Chaps. ii and iii.

mental processes. The chimpanzee not only solves a great variety of difficult problems in achieving his desires, but he also manifests emotional capacities very similar to man's in their facial expression and in their influence on behavior.⁸

MAN'S DISTINCTIVENESS

Physical Traits Peculiar to Man. Among the traits that distinguish man most sharply from his anthropoid relatives is the *hairlessness, or slight hairiness*, of his body. There are three theories to account for this remarkable trait, namely, (1) that it was due to the heat of the tropical area in which man presumably originated; (2) that it was the means of eliminating lice and other body parasites; (3) that it was a result of sexual selection, or preference in mating.

Darwin in his *Descent of Man* rejected the theory that loss of coat cover was due to heat. "The loss of hair is an inconvenience and probably an injury to man, even in a hot climate, for he is thus exposed to the scorching of the sun, and to sudden chills, especially during wet weather." He pointed out that natives in all countries protect their backs and shoulders by some covering. He likewise rejected the parasite theory. No doubt loss of hair would have made the battle against vermin easier, a fact of considerable importance for an animal of even slight gregarious tendencies living in a warm climate. But Darwin doubted whether this would have outweighed other disadvantages sufficiently to have produced so striking a change.

He, therefore, advanced the theory of natural selection. According to this theory loss of body hair became a mark of physical beauty and source of attraction. The absence of body coat made possible a more extensive display of skin color and a stronger appeal to the sense of touch. In support of this theory may be cited the fact that among all peoples the tint of the skin and its smoothness, especially in women, are primary marks of beauty. Consonant therewith, excessive facial or body hair is considered ugly and repulsive and efforts are made to remove it. Even "the men of beardless races take infinite pains in eradicating every hair from their faces as something odious." On the other hand, sexual selection has tended among some races, notably the Eu-

⁸ Wolfgang Koehler, *The Mentality of Apes*, Harcourt, Brace and Co., 1925; and Robert M. Yerkes, *Almost Human*, The Century Co., 1925.

ropeans, to preserve the beard, for among them both men and women have come to take pride in beard and moustache as marks of masculine vigor.

Both the parasite and the sexual selection theories seem valid. There is no contradiction between them; rather, they strongly support each other.⁹ That the loss of body hair occurred before the differentiation into modern races is shown by the fact that all races have the trait, though in varying degree.

Although man anatomically bears multitudinous evidence of his relationship to the anthropoids, there are also many indications of his wide variation from them. These variations have affected nearly all parts of the human body, for the reason that the development of *erect stature*, for example, would necessitate coördinated changes in all parts of man's physical structure. Thus, erect stature would require correlated changes not merely in the hips but in the bones and muscles of the feet, legs, back, and neck, and necessary adjustments of the vital organs. For example, the foot underwent a great variety of changes, including the development of the heel, so that the foot might be placed flat on the ground, and of the arch, so as to give effective support for the bodily weight. Associated with these were changes in the flexibility of the toes, which in the anthropoids were of great use in climbing. Thus, the foot ceased to be an organ with prehensile powers and became solely an organ of locomotion. In like manner, one might indicate detailed changes in the arrangements of bones and muscles of the legs. The spinal column developed its curve in order that the shocks of the contact of the heel with the earth might be fully absorbed before reaching the brain structure at the top. The erect stature involved also a complete readjustment of the head attachment to the spinal column, both as regards the pivotal bony joint and the muscular attachments.

All of these transformations, however, were merely modifications of existing structures. It is not known whether the erect stature preceded the *larger brain* or not. Those who hold that erect stature preceded large brain argued that the development of erectness would relieve the arms of their motor functions, free the jaws and mouth from prehensile uses, require a new attachment of head to vertebræ and by increasing the usefulness of

⁹ For a recent restatement of the parasite theory see Carveth Read, *The Origin of Man*, Cambridge Univ. Press, 2d ed., 1925, pp. 21-25.

powers of vision put a premium on larger brain development. It is not improbable, however, that the two changes occurred simultaneously. Clearly, the enlargement of the brain would, on account of its weight, tend to enforce a change toward a more erect stature. That the two changes may have thus affected each other is shown by certain fossil human types which are intermediate between the anthropoids and man. In these the stature is less erect than in modern man, the brain somewhat less heavy, and the neck quite short, with the muscles at the back of the head and neck enormously developed. There is thus a gradation of larger brains and more erect statures as we move from the monkeys, through the chimpanzee and gorilla, and fossil human types, to modern man. To this paleontological evidence may be added that from human embryology which indicates that increase in brain size came very early in human evolution. Increase in brain weight and in erectness would react on each other to force evolution in the direction of man as we know him.

This view would harmonize with the evidence adduced by G. Elliot Smith¹⁰ that man is "visually minded" and that the key to his large brain development is found in the great enlargement of the visual areas. As the erect posture was acquired, there would result an increased dependence on sight as the principal sense organ for adjustment to environment. Even now our expression, "I see," is used for every kind of mental recognition.

Along with the development of brain size and erect stature came a change in the *facial angle* due to the enlargement of the forehead and the diminution in size of the lower jaw and teeth. These changes were no doubt associated with growth of intelligence and refinement in the food supply.

Another very remarkable differentiation of man from the anthropoids is found in the *hand*, which is certainly one of the most remarkable physiological structures found anywhere in the animal kingdom. With its opposable thumb and its combination of great strength with agility and finesse of movement, the hand shows a very low degree of specialization for particular functions. It is not particularly adapted to grasping as is the hand of the monkey, nor to scratching, striking, or clawing as are the forefeet of various quadrupeds, though it is usable for all these with considerable effectiveness. In consequence of its unspecialized

¹⁰ *Essays on the Evolution of Man*, Oxford Univ. Press, 1924.

form it is adaptable for all human activities, whether of war, peace, artisanship and artistry of every kind and variety, love-making, and sport. Both the human hand and foot are adapted

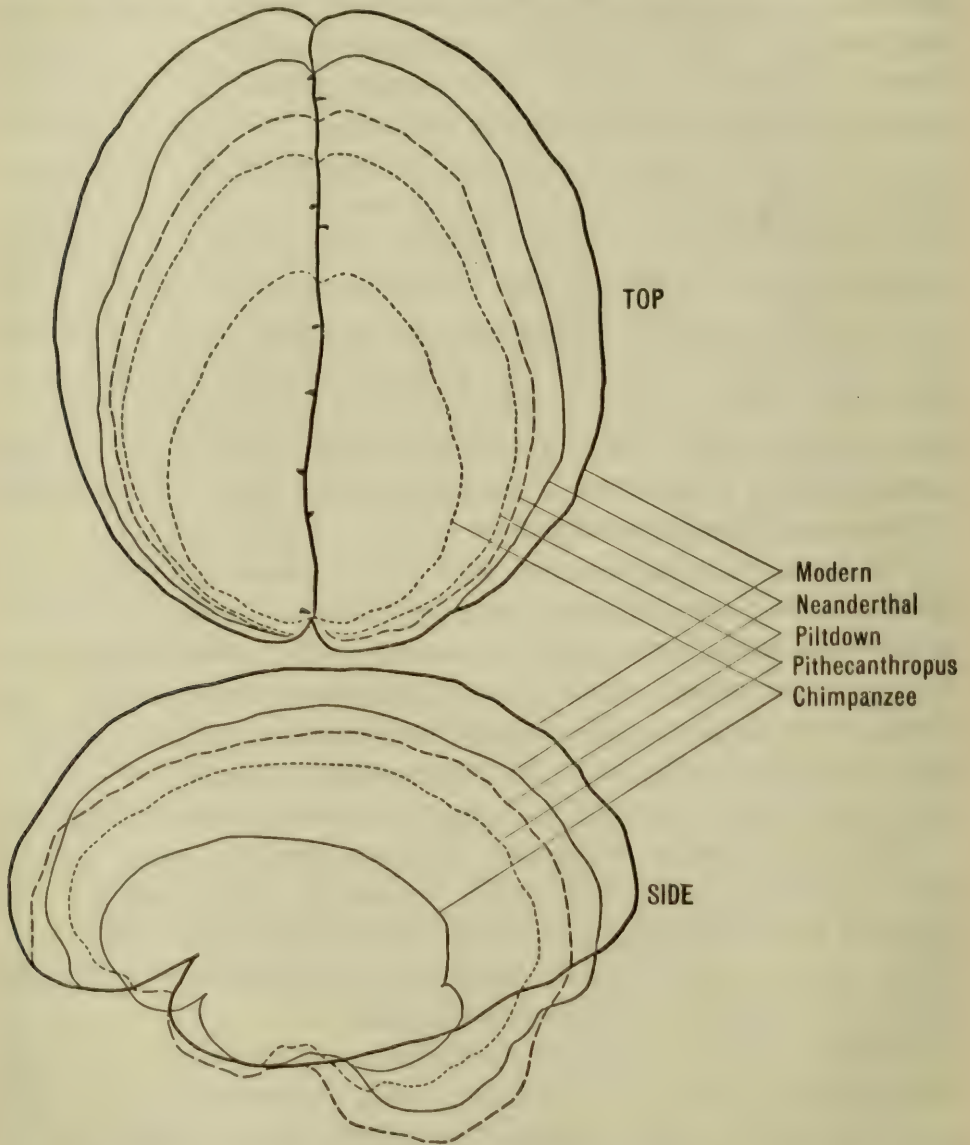


FIG. 3.—Outlines of top and side views of the brains of modern man, some of his extinct relatives, and one of the higher apes. One-third natural size. From *Men of the Old Stone Age*, by H. F. Osborn, Charles Scribner's Sons, 1914, by permission.

to life on the ground rather than in trees. Their development, together with erect stature with its associated change in power of vision and man's larger brain and intelligence, constitute the basic reasons for his conquest of the globe. It is not improbable also

that the dexterity of the human hand has been an important factor in man's inventiveness, notably his development of instruments of the chase, of warfare, and of industry. It seems very improbable that man could have developed tools and machines, had it not been for the continuous suggestibility of the hand that was to use them.

Brain Size and Power. The one trait which above all others distinguishes man from the anthropoids and marks his superiority to all members of the animal kingdom is his *brain development*. The increased size and greater complexity of structure of human as compared with anthropoid brains is the basis of a vast superiority in mental abilities. At the same time there is probably no mental trait possessed by man which is not also possessed in some degree by the higher anthropoids. All parts of the human brain are so similar to those of the anthropoids that the latter may be used in the study of brain anatomy and physiology and the localization of brain functions in man. Moreover, it is obvious that the intelligence of the chimpanzee is superior to that of the lowest humans such as idiots or low-grade imbeciles. Man's superiority in brain power is, therefore, not quite absolute. It is correct, however, to say that all normal humans are distinctly and absolutely superior in brain size and mental capacity to any and all anthropoids. (Figure 3.)

The following table indicates the approximate cranial capacity of certain anthropoid and human skulls in cubic centimeters, as compiled from various sources: ¹¹

TYPE	RANGE	ESTIMATED AVERAGE
Chimpanzee, male	350- 480	420
female	320- 450	390
Orang-utan, male	360- 530	455
female	300- 490	390
Gorilla, male	420- 590	510
female	380- 530	450
Pithecanthropus erectus	850- 900	855
Tasmanians, extinct, male	900-1,400	1,250
female	900-1,350	1,100
Veddahs, 22 males	950-1,450	1,277
10 females	900-1,350	1,139
Australian aborigines, male	950-1,550	1,287
Negroes of West Africa, male	1,000-1,650	1,350
female	975-1,500	1,220
Europeans, male	1,200-2,000	1,500
female	1,100-1,750	1,350

¹¹ H. H. Wilder, *Pedigree of the Human Race*, Henry Holt and Co., 1926, pp. 208-214; Marcellin Boule, *Fossil Man. Elements of Human Palæontology*, trans. from the French by J. E. and J. Ritchie, Edinburgh, Oliver and Boyd, 1923, p. 229; and elsewhere.

In the evolution of man from anthropoid there has been a progressive thinning of the skull bones. The proportions of brain length to skull length have been estimated as follows: gorilla, 75 per cent; chimpanzee, 81 per cent; Rhodesian man, 81.4 per cent; Pithecanthropus, 84 per cent; Neanderthal man, 86 per cent; Australian aborigines, 88.5 per cent; and Europeans, 92 per cent.

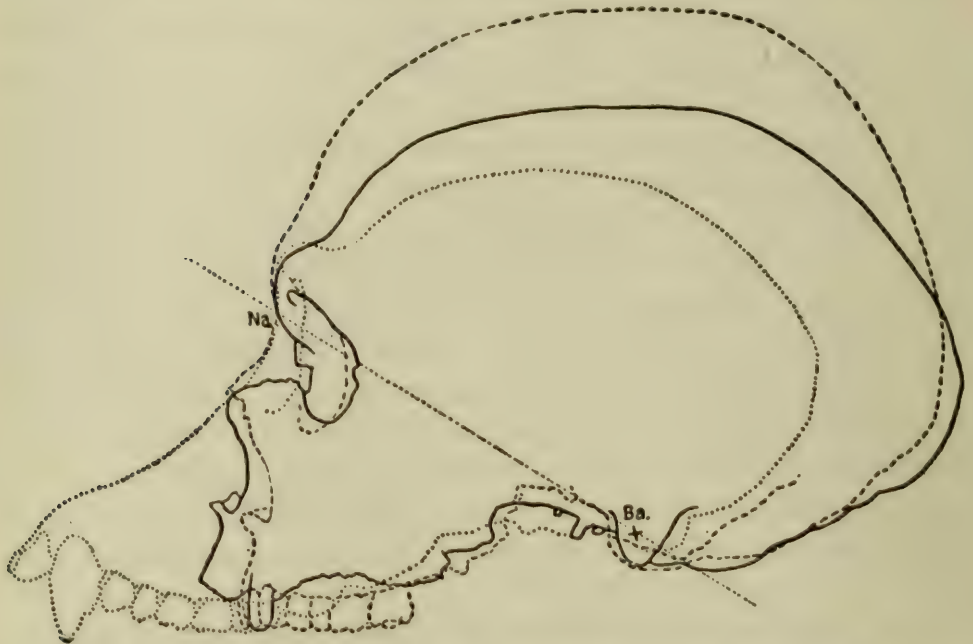


FIG. 4.—Profiles of the skulls of the chimpanzee (dotted line), the Neanderthal Man from La Chapelle-aux-Saints (solid line), and a modern Frenchman (dashed line). Placed on a common basi-nasal line they bring out the change in facial angle, brow ridge, and height of head. From Marcellin Boule, *Fossil Men*, Edinburgh, Oliver and Boyd, 1923, by permission.

In view of the larger size of the skull as we move from ape to man, these substitutions of brain substance for bone are significant.¹² (Figure 4.)

Man's Mental Traits. In spite of his large brain, it cannot be said that man has any mental traits that are peculiar to him. His superiority is one of degree, and particularly in the higher degree of abstract thought, constructive imagination, analysis, and generalization which he possesses. The senses are well developed in many animals, sometimes in higher degree than in man. Professor W. Koehler has shown that the chimpanzee manifests the same kind of mentality in the solution of problems as man. Professor

¹² Arthur Keith, *The Antiquity of Man*, J. B. Lippincott Co., 1925, p. 387.

R. M. Yerkes has also shown that the chimpanzee manifests a wide range of emotions and sentiments and does so in a remarkably human manner. In neither man nor anthropoids is the group instinct very strong. The long story of human history has revealed so much selfishness, greed, and cruelty of man to man as to show that the egoistic or self-regarding motives are very powerful in human nature. It would seem, however, that man's gregariousness is somewhat greater than that of the anthropoids and for this reason emotions of sympathy and sentiments connected with race, kind, or group are more deeply developed in him than in the apes. Another factor accentuating this is the extreme helplessness of the human infant during a longer period than the young of any other animal. This would enforce a relatively greater strength of the parental instincts and the tender emotions. In Chapter VII we discuss at greater length the question whether man has a gregarious instinct.

The differences between man's powers and those of the apes are noticeably and demonstrably greatest in the fields of creative mentality. This manifests itself in the three related but distinct fields of mechanical invention, æsthetic creation, and philosophical thought. It is often said that man is the only tool-making animal, but it is his greater brain power that makes this possible. It is in consequence of this inventiveness that he has been able to devise the great variety of material cultures which exist in all parts of the world, giving him a degree of mastery over his environment and freedom of locomotion that is unthinkable in connection with merely anthropoid intelligence. Man also shows a highly developed æsthetic sense. There seems no reason to doubt that animals also have appreciation of some of the beauties of nature, but their appreciation is purely passive and receptive, whereas man has from earliest times constructed worlds of art and music as expressions of his subjective powers and emotions. Similarly, his ability to analyze and generalize has led to the development of philosophy in all its ramifications, from primitive magic and ghostology to modern metaphysics and scientific theory. In other words, man alone has the mental equipment necessary for the creation of culture. Wherever culture is found, it is marked by the characteristics and limitations of man's mind. But the anthropoids fall short of cultural achievement. Man alone is, therefore, re-

sponsible for the last great step in evolution suggested in the previous chapter.

MAN'S ANCESTRAL TREE

Monogenism versus Polygenism. The story of Adam and Eve as the original progenitors of man, which was derived by the Hebrews from the Babylonians and passed on to the Christian world, held undisputed sway in western thought until the discovery of America. It was believed that the varied races about the Mediterranean Sea were the descendants of the three sons of Noah. The races were, therefore, called the Semitic, Hamitic, and Japhetic. But folklore studies have shown that the Genesis story is much like the creation myths of other primitive peoples. The Hebrew myth assumed a specially created, a chosen people; and, like other myths, gave no account of the origin of other peoples with whom marriages were contracted or wars fought. The discovery of America and the world exploration which followed thereafter revealed an unsuspected variety of human types. Thereupon arose a great controversy as to whether all races of men were derived from a single line of ancestry (monogenism), or from several lines (polygenism). The great interest in the related biological and zoölogical problems was due largely to the interest of man in his own origin. Moreover, the idealistic doctrine of the brotherhood of man, which held a central position in religious thought, gave a deep emotional significance to the question whether all men are of one species.

It was necessary for monogenists to show how so many varieties of man could have developed from a single ancestral stem. Unless one were to assume that the act of special creation had been repeated in different parts of the globe with varying results as regards the human form, then some sort of developmental or evolutionary theory was necessary to explain the diversity of human types, ranging all the way from the short black African pygmies to the tall blonds of the Scandinavian peninsula. Buffon (1707-1788) held that these variations were the consequences of differences in climate and food. This had been the view of Aristotle, who held that Negroes had been blackened by the sun. It was also the view of de Quatrefages (1861) who collected many alleged alterations of peoples after they had changed their habitat. However, it was at that time generally believed that man was

created only a few thousand years ago. There were many who accepted one or other of the various ecclesiastical chronologies which placed creation somewhere between 4000 B. C. and 7000 B. C. Moreover, it was observed that evolutionary changes are slow and racial types persist through long periods. It was thus very difficult, if not impossible, to explain the numerous and wide variations in human types, on the monogenetic assumption.

This difficulty was avoided by the polygenetic assumption of several distinct ancestral lines due either to repeated acts of creation or to variation and evolution. Even this, however, made large drafts on credulity in view of the extraordinary diversity of bodily shape, head form, skin color, and hair color and form in the human family. It seemed impossible to explain such diversity by either creation or evolution. The polygenetic view, however, was strengthened considerably by the great variety of language, religion, and other cultural elements, which were at that time generally believed to express inherent racial differences.

Darwin's View. Darwin ¹³ was inclined to support the monogenetic view, and for a very interesting and sound reason. He pointed out that in spite of the diversity in the human stock, the races "resemble each other closely in a multitude of points. Many of these are of so unimportant and of so singular a nature that it is extremely improbable that they should have been independently acquired by aboriginally distinct species or races." So also as regards the mental similarities of races. He pointed to the many similarities in taste and disposition, gesture, facial expression, and inarticulate cries among all races of men, and contended that these points of resemblance "must have been inherited from progenitors who had these same characters." Moreover, "when naturalists observe a close agreement in numerous small details of habits, tastes, and dispositions between two or more domestic races," they conclude that "all should be classed under the same species. The same argument may be applied with much force to the races of man."

Since Darwin's day the controversy between monogenists and polygenists has subsided because of (1) the development of the science of human paleontology and (2) the newer theories of variation. We treat these in the following paragraphs.

¹³ *Op. cit.*, Chap. vii.

The Geologic Ages and Man. We now realize that the human epic is immensely longer than the chronologies set forth by the ecclesiastical authorities. Human paleontology, or the study of fossil human remains of past geological periods, has now progressed far enough to give the preliminary outlines of when and



FIG. 5.—Europe during the maximum glaciation of the Pleistocene. The darkened areas were covered with ice. From *Fossil Man in Spain*, by Hugo Obermaier, The Hispanic Society of America, 1924, by permission.

where some of the early types of men lived and what they were like. The age of the earth is prodigious and far from accurately determined, but geologic time is divided into five great ages as indicated by layers of the earth's crust. These are: Azoic, or earliest age, when the earth was lifeless; Paleozoic or Primary, the age during which the first and most elementary forms of life appeared; Mesozoic or Secondary, often called the Age of Reptiles;

Cenozoic or Tertiary, the Age of Mammals and Modern Plant Life; and Quaternary, the latest, sometimes called the Age of Man. Each of these is divided into Periods or Epochs. For our purpose it is necessary only to know that the last period of the Tertiary Age was the Pliocene, and that the Quaternary is divided into two periods, the Pleistocene, or Glacial, and the Postglacial, Recent, or Holocene. The Glacial is further subdivided into four glacial and three interglacial periods. Only about 30,000 years have elapsed since the end of the Glacial Period, or Ice Age, while the whole of glacial time is usually given as at least 600,000, and as possibly 1,500,000 years. The transformation of ape into man occurred during the Pliocene period, and the very earliest paleontological evidences of man are usually located in the late Pliocene or early Pleistocene. It should be stated, however, that the view has recently been expressed by more than one distinguished authority that it is highly plausible to believe that man first appeared on the globe in the Miocene, or even in the Oligocene, period. These are the periods preceding the Pliocene. Such a view pushes the time of man's differentiation back to an extremely remote epoch. The recent explorations in central Asia by the expeditions sent out by the American Museum of Natural History have been eagerly expected to throw some light on these interesting speculations. Thus far their results have been meager. No new mammalian forms seem to have appeared anywhere since the early Pleistocene. There is much evidence that man existed in western Europe during the last two glacial epochs and possibly throughout the whole of the Ice Age. (Figure 5.)

The following chart presents in some detail the relations of different types of ancient man to the geological divisions of the Quaternary, or Age of Man, together with some indications of the climatic conditions at different epochs and some of the animals which man hunted, their bones being found around his ancient hearths. The student will find it of some interest to compare the columns giving "Climate in W. Europe" and "Characteristic Animals," in order to get a suggestion of the great climatic revolutions through which western Europe has passed in relatively recent times.

GEOLOGICAL PERIODS, CLIMATE, HUMAN AND ANIMAL TYPES

GEOLOGICAL AGES	GEOLOGICAL PERIODS	ESTIMATED TIME ¹⁴	CLIMATE IN W. EUROPE ¹⁴	CHARACTERISTIC ANIMALS ¹⁴	HUMAN TYPES
Quaternary	Postglacial	25,000	As now. Severe temperate.	Forest and meadow mammals of Europe as now.	Modern European Nordic Alpine. Mediterranean.
	4th Glacial	25,000	Very cold steppe and tundra climate as in Siberia.	Last evidences of mammoth, reindeer, and Alpine fauna in lowlands.	Crô-Magnon, Brûnn, Combe-Capelle, Grimaldi.
	3d Inter-glacial	100,000	Opens with warm, semi-torrid climate grows colder, resulting in deforestation.	Arctic tundra fauna; age of reindeer; woolly mammoth and rhinoceros in France; Arctic fox, musk ox, ibex, chamois, etc.	Neanderthal man may have lived in caves through 4th Glacial.
				At first, African-Asiatic elephant, hippo, rhinoceros, lion, hyena, jackal, sabre-toothed tiger. Later these were replaced largely by tundra fauna from N. and steppe fauna from western Asia. Cave bear.	Neanderthal, Gibraltar, Chapelle-aux-Saints, Spy, Krapina, etc.
	3d Glacial	25,000	Great glaciers in N., reaching England. River valleys tolerable.	Reindeer and woolly mammoth and rhinoceros. Giant deer.	
	2d Inter-glacial	200,000	Warm temperate climate.	Numerous African-Asiatic animals; also stag, giant deer, bison, wild cattle, forest horse, boar, wolf, fox, lynx, wildeat, bears.	Eoanthropus or Heidelberg, possibly but not certainly. Pithecanthropus (?).
	2d Glacial	25,000	Very cold about North and Baltic seas; glaciers reach England.	Reindeer and woolly mammoth.	
	1st Inter-glacial	75,000	Temperate climate.	African-Asiatic mammals, and animals of forest and meadow.	Eoanthropus, or Heidelberg, possibly but not certainly.
	1st Glacial	25,000	Glaciation less extensive than in later glacial epochs.	Cold forest fauna; musk ox in England.	
Tertiary	Pliocene				Eoanthropus (?). Pithecanthropus (?).

In interpreting this table there are several things to be kept in mind. In the first place, there is no certainty attaching to the time estimates in the second column. Such estimates vary greatly. These estimates, by Osborn, give a total of 500,000 for the entire

¹⁴ Osborn (*op. cit.*), pp. 23 and 41; and Hugo Obermaier, *Fossil Man in Spain*, Hispanic Society of America, 1924, Chap. iii.

Quarternary, or Age of Man, a total that is not far from the average of conservative opinion. In any case, the time is long enough to comprise thousands of generations between modern man and his progenitors, a time long enough to permit all existing varieties to arise from one stem.

In the second place, the African-Asiatic fauna mentioned, such as elephant, lion, etc., while similar in name in these simple English terms, are as a rule different in type from the animals of these names which we now know. They were, however, the more or less near kin of the modern types.

In the third place, there seems to have been, throughout this period, much as to-day, a great difference between the climate south of the Alps and the Pyrenees and that north of them. It was only in the very coldest epochs that such northern fauna as the reindeer wandered so far south as Spain, while it was only in the warmer phases of the long interglacial epochs that the animals accustomed to torrid and semi-torrid conditions wandered as far north as northern France or southern Germany.

In the fourth place, attention should be called to the difficulty of locating in such a table the Sussex, Heidelberg, and Pithecanthropus types. There seems little doubt that this latter belongs to the late Pliocene or the early part of the Pleistocene. It is not yet clear where either of the others belongs. Different authors place them in the various places indicated.

Processes of Differentiation. If man evolved from some ape-like ancestor, and if all known races are of the same species, it will be asked, "By what processes was this differentiation brought about?" According to the Darwinian theory, the origin of new species from old ones is accomplished by the processes of *variation*, *natural selection*, and *heredity*. That is, there is a general tendency of every species to vary about its typical form. Those variates that are stronger, fleetier, better protected from the elements, more cunning, or otherwise better adapted to the conditions of life will live longest and leave most offspring. They will thus hand on their qualities in greater or less degree to their offspring through the operation of heredity. It is clear that more and more perfect adaptation of an animal to its habitat would be produced by these processes, but it has now become a question whether entirely new species could thus be evolved. Consequently, that theory is supplemented by the addition of the con-

cept of *mutations* to the concept of variation. Mutations are genetic variations, or variations affecting the constitution of the germ plasm, and are thus inherited. They are illustrations of the creative evolution mentioned in the previous chapter. In this way new types constantly appear.

There can be no doubt that mankind and its immediate predecessors underwent a great variety of mutational changes. The simple Darwinian theory of progressive adaptation to environment would require an orderly series of changes in a definite direction, whereas the facts indicate a good deal of experimentation by nature with all sorts of combinations. There has thus been a certain amount of backward and forward movement. The Crô-Magnon race, for example, was taller and possibly brainier than any now existing. The shape of the femur has gone from straight and slender in *Pithecanthropus* to curved in Neanderthal man, less curved but heavier in Crô-Magnon man, to straight and less heavy in modern man. A similar angular rather than straight-line development might be shown for other features. Modern genetic research has shown that an important mutational change in one trait is likely to have associated with it the necessary correlated changes in other traits. Consequently, natural selection does not work on individual traits but rather on the organism as a whole. It results that the type which survives, while superior or better adapted as a whole, may be inferior in certain particular traits to fossil types which were superseded. Modern man, for example, is apparently less powerful physically than his forerunners, but more highly gifted intellectually.

Moreover, different forms of the same trait may be about equally adapted to survive. Thus, the two distinctive types of skulls, the long heads and the round heads, are found in similar habitats. Neither form appears to be a handicap in the competition of life; neither shows such superiority as to lead to its rapid substitution for the other; neither head form is so associated with other traits as to give one type a distinct advantage over the other. Round-headed and long-headed types of men have lived in Europe for several thousands of years and will continue to do so for ages to come. Out of the endless variety of mutations in her repertory, nature thus finds more than one combination of traits that proves stable and effective. But the mutational theory is only an addition to and correction of the Darwinian doctrine.

It was always true that strength tends, other things being equal, to prevail over weakness, intelligence over stupidity, coöperation and group solidarity over single-handedness and solitariness.

Moreover, it is very important to note that a continuance of advantageous mutational changes is greatly facilitated by *lack of specialization*. Man's evolution took the form of increasing emphasis on generalized intelligence and versatile bodily structures, instead of thick skin, long teeth, horns, hoofs, or other means of defense. Human brain and hand are the two most versatile organs in the animal world. It was in consequence of them that man did not need to develop either protective structures or a special mode of life. He retained powers of adapting himself to all climatic conditions and ways of living of a very wide variety.

Among the most important mutational changes accounting for the differences between man and the apes, as also between different races of men, would be *changes in the endocrine glands*. It now seems clear that these glands play an important part in those *physiological processes of growth* whereby the size and character of the various parts of the body are regulated. Thus, an alteration of stature, of hairiness, of pigmentation, and of physiognomy would be accomplished by an alteration in the activity of the glands whose enzyme affected these traits. The activity of the thyroid gland affects stature; the adrenal glands affect pigmentation. This endocrinal theory does not in any way alter the above theory of differentiation through mutation and selection. It merely adds an explanation of a part of the physiological mechanism whereby mutational variations may express themselves in the growth of the individual. Professor Keith ¹⁵ is able to show that various facial features, size of jaw, development of ears, shape of head, length of limb, and other bodily traits are related to differences in the intensity of operation of one or another of the ductless glands. He similarly indicates quite clearly that temperamental differences of the races may be explained in like manner. Thus he finds that the Chinese are subthyroid and the Negroes are subadrenal in comparison with Europeans, especially the Nordics. We cannot, however, accept Professor Keith's suggestions as scientifically established as yet, so far as particular racial differences in endocrine functioning are concerned.

¹⁵ "The Evolution of Human Races in the Light of the Hormone Theory," *Johns Hopkins Hosp. Bull.*, Vol. 33, 1922, pp. 155-159 and 195-201.

Natural selection, or the elimination of the less adapted, must have worked vigorously upon man during those many thousands of years when he was little more than a mere animal with undeveloped arts of food and defense. It is obvious, too, that in his long history, group after group would be *segregated from the ancestral stem by migration and geographical barriers*. This would give rise to *geographical selection* whereby human strains living in different but isolated environments would become somewhat distinctive. Mutational variations occurring in such isolated groups and preserved by natural selection would increase their differences from their ancestors and relatives in other habitats. Human stems, separated through many generations, would thus develop distinctive racial characteristics and then, by crossing, produce one or more of the hybrid sub-races with which the earth abounds. As Sir Arthur Keith says: "We should expect, then, when we go far enough back, to find humanity broken up into distinct structural groups or genera, each confined to a limited part of the earth. Inside each group we expect to find, as among the great anthropoids, a tendency to produce varieties or species." For this reason, as we travel back along the line of human descent, we should expect to find types so different from modern man as to warrant their classification in different species. Several such types of fossil men have been found; and many other fossil types, as yet unknown, will doubtless be found when Africa, Asia, and the Americas are systematically explored. These fossil men represent a few of the many combinations of humanoid traits which occurred in the course of hundreds of thousands of years. They were unequal to the struggle for existence, either because they were overwhelmed by physical nature, destroyed by some bacterial plague, or killed by their distant relatives of higher form.

At the same time this would not prevent our viewing all modern men as members of the same species. If we assume that the stem of modern man has existed for at least 200,000 years, it is obvious that, in spite of the great force of heredity, a single ancestral stock may have reached the present diversity through the operation of mutation and natural selection. Professor Keith presents the following picture of what may be presumed to have taken place. "As a result of recent discoveries we are compelled to take a more complex view of ancient man. In our first youthful burst

of Darwinianism we pictured human evolution as a simple procession of forms leading from ape to man. The true picture is very different. We have to conceive an ancient world in which each region or area was sparsely occupied by its own particular type of mankind; these regional types were in turn broken up into local species or varieties. Then out of that great welter of ancient human forms one species became dominant, and ultimately the sole surviving form."¹⁶

Whether or not all existing races, including the extinct Tasmanians, belong to the same species, *Homo sapiens*, is, however, not certain, though generally accepted. We may well doubt whether such a generalization rests on anything more than our ignorance of the detailed differences of the races, both anatomically and genetically, and on the genial desire to lend support to the well-meaning doctrine of the brotherhood of man. The argument usually presented for the unity of species is that, so far as known, all races are mutually inter-fertile, it being a long-accepted doctrine that inter-fertile types belonged to the same species. But this criterion seems to have broken down latterly, inasmuch as perfectly inter-fertile types of both plants and animals are now described as belonging to different species. Darwin long ago declared that the differences between different varieties of man were so great that, for any other genus, they would furnish adequate grounds for classification into different species. It is thus clear that the inclusion of all existing races in one species is largely a matter of formal convention and does not signify that they might not be separated into different species, if the zoölogist wished to make his classification somewhat finer.

Whether or not, therefore, all races belong to the species, *Homo sapiens*, is of purely formal rather than crucial importance. Under the theory of organic evolution, all the races might be descended from a common ancestral type, even though they now are classed in different species, provided this common ancestor be remote enough. The known differences between racial types apply not only to such superficial traits as skin color, eye color, hair shape and color, stature, shape of head, and physiognomy, but to skeletal structure, physiological functioning, brain size, and intelligence level. In all cases the differences between one race and its closest relative, however, show considerable overlapping. More-

¹⁶ *The Antiquity of Man*, p. 283.

over, the differences between types, such as the African pygmy and the Swedish Nordic, cohere in a stable, hereditary complex, only so long as the different types are prevented from crossing with each other. This indicates that each race type as a whole was developed by hereditary and selective processes during a long period of isolation and inbreeding. Similar conditions might, in time, easily produce all the present diversity of type. In any case, if the line of human descent is traced back far enough, it sooner or later comes to a single ancestral stem. We must conceive the varied branchings of the human family as similar to the branchings of a huge tree whose stem divides into three (or four) main branches, each of which in turn divides and subdivides into the greatest variety of size and shape.

Chart of the Ancestral Tree. We may be certain that the several main branches of man, as we know him, and even his extinct precursors have all descended from some common but very remote ancestor. These main branches split off from each other thousands, even hundreds of thousands, of years ago, and, while thus developing obvious differences, have retained a fundamental similarity. This may be illustrated by the accompanying chart showing the ancestral tree of man as prepared by Sir Arthur Keith. This is only one of several such charts, and must be taken as suggestive rather than final. According to this view the Humanoid Stem separated from the stem common to man and apes probably in the Oligocene, well over one million years ago, and from the monkey stems at much earlier dates. Nothing in all nature attests more forcibly the enduring power of heredity than the thousand and one similarities among the various races of man and the anthropoids, in spite of their differentiation a million years ago and their subsequent life under the most varied environmental conditions. But, on the other hand, the lapse of this period, during which man and anthropoids have traveled independent evolutionary routes and during which nature's resourceful laboratory experimented with many fossil forms of both, provides ample time for the growth of the vast gap between them. (Figure 6.)

It will be noted, also, that Professor Keith estimates that the separation of the stem of modern man from that of *Pithecanthropus* occurred about 700,000 years ago, and from that of known fossil men about 400,000 years ago; and he thinks that the differentia-

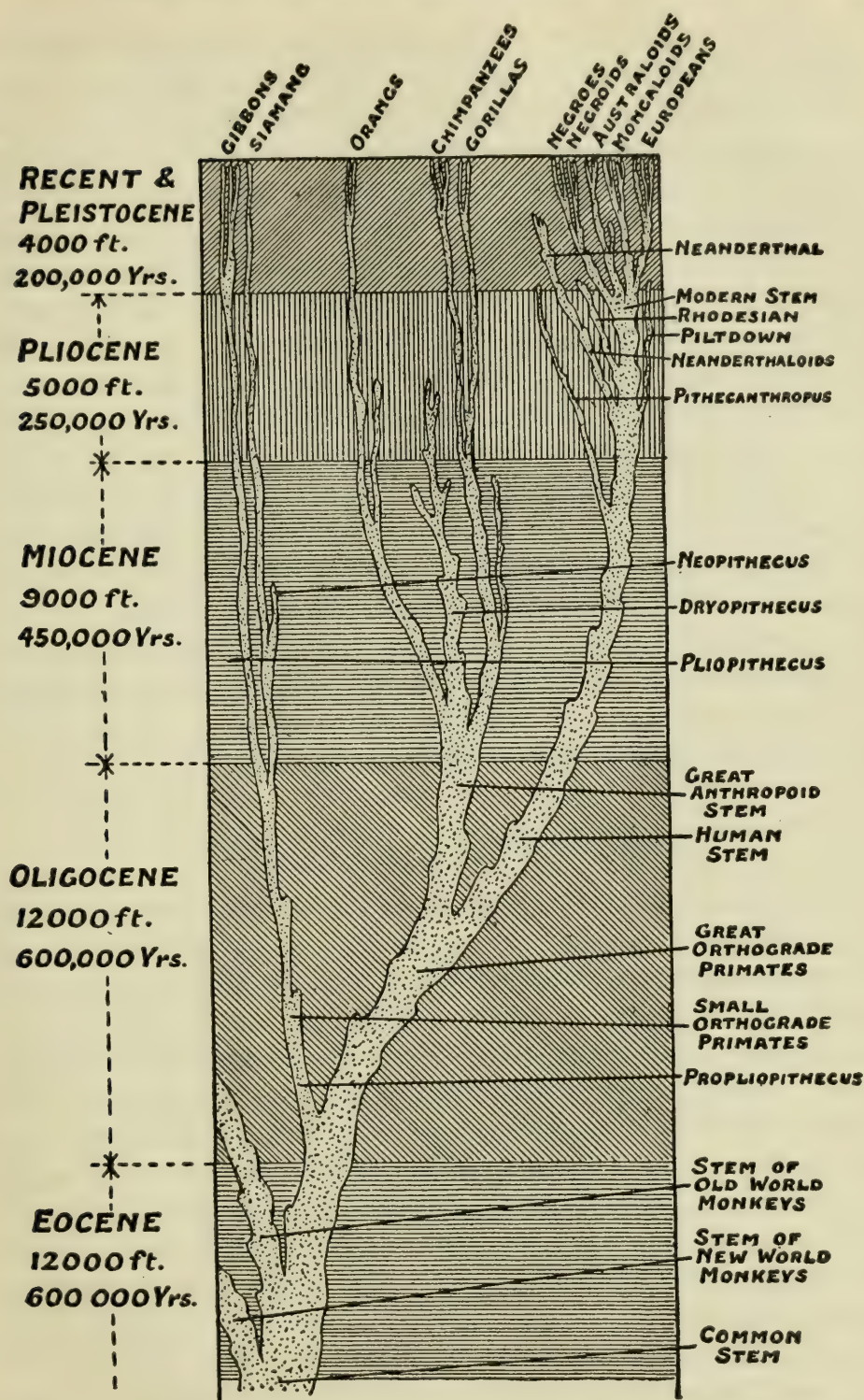


FIG. 6.—The line of human descent showing man's differentiation from the anthropoids and monkeys in relation to geological time. From *The Antiquity of Man*, by Sir Arthur Keith, J. B. Lippincott Company, 1925, by permission.

tion of four main types of modern man occurred about 200,000 years ago, or about the beginning of the Pleistocene period. The student must be wary of accepting these time estimates. As compared with those given by most authors, these are near the minimum. While the length of the Pleistocene period is estimated by Professor Rutot at only 140,000 years, Professor Penck estimates it at from 520,000 to 840,000 years. This latter estimate was accepted by Professor Osborn as "conservative" in his *Men of the Old Stone Age*; but more recently ¹⁷ he shows that the Pleistocene, or Ice Age, may now be estimated at one million, the Pliocene at six million, the Miocene at twelve million, the Oligocene at sixteen million, and the Eocene at twenty million. On this basis, the stem of modern man would have separated from those of Neanderthal and other fossil human types not less than four million years ago. While these high figures are not yet accepted, they are not impossible. These wide differences in chronology show the caution necessary in accepting particular time estimates but indicate the universal agreement that climatic changes, land elevations and depressions, animal evolution, and human evidences all require that the Age of Man be enormously long.

PROBABLE ZONE OF MAN'S ORIGIN

It is as yet impossible to do more than make a rational guess concerning the area in which modern man arose. It was Darwin's view that the most probable original area of differentiation from anthropoids was Africa. This conclusion was based on three arguments.¹⁸ (1) He contended that modern mammals are usually closely related to the extinct species of the same area. The anthropoids most closely related to man are the gorilla and chimpanzee, both of Africa. The weight of this contention is greatly reduced by the facts that the orang-utan of southeast Asia, an ape as close to man as the gorilla and chimpanzee, and the *Pithecanthropus erectus*, a fossil ape-man intermediate between *Homo sapiens* and the anthropoids and found in Java, argue quite as strongly for an Asiatic origin. (2) Darwin also thought that man was originally frugivorous, or lived exclusively on fruits, nuts, and other vegetable products. Since, however, all living

¹⁷ H. F. Osborn, *Eugenical News*, Vol. 12, March, 1927, p. 35.

¹⁸ *Op. cit.*, pp. 155 and 171.

racess of men and known fossil types have been omnivorous, this second argument for the African origin also lacks weight. (3) The same is true of the argument that loss of body hair would have been easier in the tropics. We have seen that Darwin himself thought the loss of coat cover would have been a hardship anywhere, so we are warranted in assuming that man very early learned to utilize some kind of artificial covering.

In the light of the evidence available a generation ago, Professor F. H. Giddings ¹⁹ thought that the human species originated somewhere in southeastern Asia and gradually spread in all directions. One stem crossed to Africa, by a prehistoric land bridge across the Indian Ocean, where it differentiated into the varied types of African. Other stems moved to the north and west where they differentiated into the Mongoloid and European varieties. As above indicated, in this process there was, through many thousands of years, the development of numerous varieties through mutation and environmental selection, and innumerable crossings and combinations which resulted in the extraordinary diversity we now see.

Since Professor Giddings wrote, many remarkable finds of fossil men have been unearthed. Just now there is a considerable body of opinion, especially among American scholars, which holds that the zone of man's differentiation was located in the great plateau region of the central part of the Asiatic continent. Various expeditions of exploration, notably those of the Natural History Museum of New York during the past few years, have discovered numerous fragmentary evidences of man's early existence in the regions of the Mongolian desert. These evidences consist of scattered teeth, jaws, bones of the skull, leg, and the forearm. While the geological position of these remains indicate that they cannot be more than a score of thousands of years old at most, there is some slight but apparently indubitable evidence that man lived in Eastern Asia in late Pliocene or early Pleistocene times. This evidence consists of two human teeth found in a cave southwest of Peking, China, in 1921. While the remains of ancient men thus far discovered in Asia are too few to constitute a firm basis for a theory of the human cradle-land, it must be remembered that these are necessarily only chance remnants, because large carnivores easily crush human bones. It is not likely that very early

¹⁹ *Principles of Sociology*, The Macmillan Co., 1896, pp. 212-221.

man practiced burial of the dead, so that except in rare places his bones would soon wholly disintegrate.

Corroborating evidence of an Asiatic cradle-land is found in the fact that, not only are very ancient fossil pithecoïd bones found in the Siwalik Hills of northern India, but the fossil ancestors of the gorilla and orang are found in that continent. It seems certain also that every form of mammal can be traced back to Asiatic ancestry.

The current theory is, therefore, that man originated from a primitive tree-dwelling Asiatic anthropoid, which was compelled to alter his habitat on account of climatic changes which destroyed the forests constituting his ancestral home. Thus forced to glean his existence on the ground, whatever mutational variations occurred in the direction of erect stature and enlarged brain were preserved by natural selection. Professor Osborn is so convinced of the Asiatic scene of this evolution that he anticipates the ultimate discovery of skeletal remains of Dawn Man, in central Asia. So far is he from accepting the theory of man's relatively recent differentiation, that he believes these Asiatic fossils will show man to have been already erect and large of brain in Oligocene, or even Eocene, times, or some millions of years ago.

There is also the corroborating evidence of human migrations. In the first place, many of the most primitive types of man are found in the isolated border regions of Asia. Such are the extinct Tasmanians, the Australian aborigines, the Negrito pygmies of the Philippines, and the Andaman Islands in the Bay of Bengal, the Veddahs of Ceylon, and others. In the second place, there is an enormous amount of myth and tradition pointing to Asia as the area from which have migrated one body of men after another. Among Asiatic migrants are believed to be the North American Indians, the Polynesians, and most of the racial types now found in Europe. Much of this tradition is, however, of little value for our present problem, since it is of relatively recent origin in comparison with the long, long period that has elapsed since men of modern type originated. Moreover, this tradition is for the most part a more or less mythical feature of the general cultural stream to which we belong. It may, therefore, indicate nothing more than that the races which originated the cultural advances about the eastern end of the Mediterranean 10,000 years ago were of Asiatic ancestry, and that subsequently this culture diffused westward. Moreover, these cultural advances may have

been largely in the nature of lucky accident, while the diffusion of elements of the ancient culture into Europe was primarily a consequence of geographical conditions.

It would appear, then, that the Asiatic evidence is thus far theoretical and traditional for the most part. Aside from the Java find, there are as yet no important fossil human discoveries anywhere in central, eastern, or southeastern Asia. In 1925 an important discovery was made in Galilee, but an equally important find was made in South Africa about the same time and still another in 1921. Moreover, several fossil types of great antiquity have been found in western Europe. The importance to be attached to these latter is reduced by the fact that the unearthing of any fossil remains is largely a matter of happy accident. Such good fortune would occur more frequently in Europe because Europeans alone have been actively interested in discovering such evidences of man's hoary past. At present we can only say that the zone of origin is highly uncertain. It may have been central Asia; it may have been southeastern Asia; it may have been Australia, central or southern Africa, or western or southern Europe. It probably was not in North or South America. Moreover, the rapidly growing data indicate that there was probably a considerable number of human and near-human types scattered about over Europe, Asia, and Africa during scores, if not hundreds, of thousands of years. These may have evolved along parallel or slightly divergent lines with many slightly differentiated varieties and more or less numerous species. In that case, it will never be possible to be absolutely certain either of the exact ape-man in which occurred that line of evolution which led to *Homo sapiens*, or of the exact geographical area, or areas, where it differentiated.

THE GENERAL NATURE OF ANCESTRAL MAN

There are two quite diverse assumptions regarding the psychic nature of primeval man. One of these is that man originally was of a very peaceful, humane, sympathetic disposition. This view is represented in the widely accepted myth that God created man "a little lower than the angels." The invention and wide acceptance of this myth is easy to understand in the light of human psychology. It represents an idealization which is flattering to human nature. To think of himself as little short of angelic in his real inward nature, in sharp contrast with the obvious grossness

and brutality he daily manifests, would also constitute a pleasing "flight from reality." An eighteenth-century philosopher, Jean Jacques Rousseau, pictured early man as the noble savage, combining all the human virtues and living in a state of peaceful contentment. In his view, human nature was originally and basically good but had been corrupted by religion and government. Thus, the philosopher, like the religious myth of man's fall from grace after eating of the forbidden fruit, represented the pristine state of human nature as exceedingly pure and lofty.

Set over against this view is that represented in the above-quoted description by the philosopher, Thomas Hobbes. To say that the life of man in its earliest phases was "solitary, poor, nasty, brutish, and short" is not to picture him as living in a Garden of Eden. Nevertheless, the Hobbesian view has the merit of being realistic and willing to face the facts. In those extremely remote times, when man was just emerging into his human form, he undoubtedly lived the life of the brutes. Before he had tools, while winning his subsistence from nature with nothing but natural sticks and stones as weapons, he must have experienced frequent periods of deepest emotional stress. Fears wholly unknown to us; brutality and bloodthirstiness of the most savage sort; extremes of hunger and seasons of lustful riot; all these were no doubt interspersed with periods of play, relaxation, quiet contentment. His was the same human nature as our own, but he was less protected than we from the tragedy of the universal struggle for existence, the necessity of eating and the danger of being eaten. It is safe to say that our distant forebears were strong, agile creatures gifted with the strength, courage, and ferocity necessary to maintain themselves and perpetuate their kind in competition with the forces of raw nature.

Of like tenor is the interesting thesis advanced by Carveth Read²⁰ that man evolved from an ape with wolfish psychic characteristics. He finds that man exhibits, in a complex form and on a higher plane, the traits of the wolf-pack, that is, that the psychology of the hunting pack is deeply ingrained in his nature. He is gregarious, aggressive, follows his leaders, submits meekly to the crowd, is deeply interested in the chase and thrilled by killing, manifests a strong spirit of emulation, and shows cunning and strategy in the pursuit of his objects. There is without doubt

²⁰ *The Origin of Man*, Cambridge Univ. Press, 1925, Chaps. i to vi.

considerable truth in this theory. Many psychologists have pointed out the frequent manifestation of a hunting-pack pattern in man's behavior, in play, in business, in politics, in sport, and in war. This *wolf-ape theory* must not be interpreted as meaning that man has any blood relationship to the wolf, nor as giving an adequate view of man's complex psychic nature. It does, however, serve to throw into prominent relief some of the outstanding characteristics of human nature as they have been revealed in the pages of history.

Corroborating Read's viewpoint is the current rejection of the theory that man originally was a tree-dwelling animal. No doubt a number of man's bone and muscle structures are of the form which adaptation to arboreal life would have produced.²¹ This evidence, however, requires one to believe only that some very remote ancestor of man was arboreal, not that his immediate precursor was a tree dweller. The arboreal traits are the indelible marks upon man's hereditary nature of what must have been a very long chapter in his evolution. There is an increasing body of evidence to indicate that, since immemorial time, man has been a land animal, and that, in fact, his immediate precursors or closest relatives were also land dwellers. This, undoubtedly, is true of the *Pithecanthropus* and of the recently discovered Rhodesian man, the two most ancient, definitely human, fossil remains yet discovered.

Professor Karl Pearson contributes support to the land-ape viewpoint in consequence of a very detailed examination of the femora of man and of other primates. He finds that man is not at all closely related to the timid tree-shrew, a little animal that shrinks to the tree-tops at the approach of danger, but that his ancestor was "heavy in build and violent in character. Man of paleolithic times was agile in motion, slender in his proportions, gracile in his bones, and dexterous in his flight from possible foes. He won his way as a violent fighter and a ravenous feeder, not as a gentle, shy, and fugitive animal. We owe more than half our troubles to-day to this ancestry. Is the brutality and violence of man to-day a fall from a higher estate, or an atavism, a relic of a violent past?"²²

We thus reach the conclusion that man's precursor was a power-

²¹ F. Wood Jones, *Arboreal Man*, London, E. Arnold, 1916; and W. K. Gregory, "Two Views of the Origin of Man," *Science*, n. s., Vol. 65, 1927, pp. 601-605.

²² "Side Lights on the Evolution of Man," *Eugenics Laboratory Lecture Series*, No. 13, 1920, p. 6.

ful land-ape, and that man has inherited from this ancestry some of his most important traits. No doubt this point of view will seem to many to be objectionable as reflecting upon man's high moral estate. It must be remembered, however, that in the absence of great brute strength, ability to inflict death upon his enemies, and relative indifference to suffering and bloodshed, man, during those countless generations when he was little more than an animal with no highly developed arts of civilization, would never have succeeded in spreading from his original zone over the entire globe. Man is by nature a fighting animal and, as Professor Pearson above intimates, it is in this hereditary constitution of man that we find an essential basis of domestic rivalry and conflict and the extreme difficulty experienced in putting an end to intertribal and international warfare.

When one reflects on the violence that to a considerable extent characterizes every page of history, how war, persecution, murder, and rapine have been and still are extremely frequent, how the recent European holocaust was immediately preceded and followed not only by numerous others on a smaller scale but also by internal strife, riots, bloodshed, and a multitude of brutalities of man to man, one must realize the tremendous import of Professor Pearson's assertion. Even among us to-day the prize-fighter is a national hero, the soldier and sailor are idealized, the spirit of revenge, even blood revenge, is all too frequent, while even a politician finds such a title as "Fighting Bob" a good vote-getter. The greatest source of injustice is "man's inhumanity to man"—human exploitation. Nothing was more amazing during the recent war than to observe refined and sometimes delicate persons, often of the feminine sex, demanding the complete annihilation of the enemy to the last woman and child. This inherent pugnacity of man is of first-rate sociological significance, for it reveals both why man seeks refuge from reality in a gospel of peace and good will and why the ideals of Christianity are so difficult of realization in practice.

But it must not be overlooked that many of the finest human traits are rooted in this same fierce pugnacity. The spirit of independence, both physical and moral courage, capacity to face danger, to do and to dare, to run risks—all are deep-seated in man's animal nature. Because of them man has conquered land and sea, torrid forest and swamp, and arctic waste; he has tamed

wild animals, and harnessed the forces of nature. Had he been wanting in intrepidity, wildness, and ferocity; had he been timid, fearful, and non-resistant; human history would have been utterly different from what it has been. Whether it would have been better is another matter, but the first purpose of science is to understand, to know things and men as they are.

EXTINCT TYPES OF MAN

It is quite certain from existing evidences that in the process of evolution of modern man a variety of human types was evolved which subsequently disappeared. Most of the work in this field has been done in limited areas of Europe, and we may reasonably suppose that future investigations are almost certain to reveal additional types of fossil men in the continents of America, Africa, and Asia. As the foregoing chart indicates, Professor Keith suggests only four fossil types: *Pithecanthropus erectus*, *Homo Neanderthalensis*, of which the Heidelberg man was a prototype, *Eoanthropus dawsoni*, and *Homo rhodesiensis*.

Other classifications can be made, depending on how much distinctiveness is attributed to the various fossil finds. It is obviously too early to make more than a preliminary suggestive classification of human types. It seems fairly certain, however, that the following forms are sufficiently distinct to merit their description as special varieties of man: (a) *Pithecanthropus erectus*; (b) *Homo rhodesiensis*; (c) *Eoanthropus dawsoni*; (d) *Homo heidelbergensis*; (e) *Homo neanderthalensis*; (f) *Homo sapiens*. All but the latter are extinct fossil types, while all existing races are included under the latter. In the following paragraphs we give a brief discussion of some of the more interesting discoveries in human paleontology. We begin with a very recent find whose position in the genealogical tree is as yet wholly indeterminate.

Australopithecus Africanus. This term ("Southern Ape of Africa") applies to a very recent and important find by Professor Raymond Dart near Taungs, Bechuanaland, South Africa, in February, 1925. The find consisted of considerable parts of the skull and face bones resembling those of a child of perhaps six years of age.²³ It was notable for the absence of brow ridges and

²³ For description and discussion, see Raymond Dart, "Australopithecus Africanus: The Man-Ape of South Africa," *Nature*, Feb. 7, 1925, pp. 195-199; also, the symposium on "The Fossil Ape from Taungs," *Ibid.*, Feb. 14, 1925; for photographs, see H. H. Wilder, *Pedigree of the Human Race*, p. 155.

for the human size of jaws and teeth. The brain was smaller than that of a large full-grown gorilla, but had not reached its full development. Some authorities have related this type to the Neanderthal of western Europe, while others consider it much more primitive. Professor Dart called it a type of man-ape and placed it between the chimpanzee and the ape-man. In any case it gives evidence of the transformation of ape into man.

Pithecanthropus Erectus. In 1891 a Dutch scientist, Dr. Eugene DuBois, left Holland for Java with the avowed intention of discovering the "missing link" between man and the apes. That fall and the following summer, in alluvial deposits along the Trinil River, forty feet below the surface, he discovered a skull-cap, two upper molar teeth, and a femur. These were attributed to an erect ape-man, *Pithecanthropus erectus*. The remains are variously placed in the late Pliocene or early Pleistocene and thus date back at least 200,000 years. Not all experts agree that all the remains belonged to the same individual or even to the same type of animal. The prevailing opinion, however, is that they belonged to an ape more man-like than any now existing, and represent the closest approximation to the "missing link" between man and the anthropoids thus far found. The femur indicated an erect or semi-erect posture. Speech apparently was wanting or only slightly developed; the speech area of the brain, as shown by the skull configurations, was twice as large as in apes but only half as large as in man. The skull was flattened on top as in the chimpanzee, and showed a cranial capacity of 850 to 900 c. c. The ratio of brain to body weight has been computed as 1 to 94; whereas in the orang this ratio is 1 to 183; and in man 1 to 51. Another set of comparative figures of great interest are those already given indicating the relative cranial capacity of the apes, the ape-man, and modern man.

Homo Rhodesiensis. This so-called Rhodesian man was found in Northern Rhodesia, South Africa, in 1921. The find consisted of a nearly complete skull, except the jaw, a complete tibia, upper and lower ends of a left thigh bone, a sacrum (key bone of the pelvis), and part of the upper jaw of another member of the same species. All authorities agree that these are the remains of one of the most primitive types yet found, but clearly a species of *Homo*. The skull is low and long, with low frontal vault, depressions on top and at the back, and a heavy bony struc-

ture. Owing to the heavy brow-ridge and the bony projection at the back, the skull was remarkable for the small proportion of its total length occupied by the brain. (See comparative ratios given above, p. 56.) The eye-ridges are the most massive yet found in man. The absence of the line dividing cheek from nose would suggest an ape-like face of rather huge proportions. The nose is wider than that of any living race, and the area covered by the upper lip is notably large. The teeth are large, but the canines are not of the ape-like, projecting type. To correspond with these features, the lower jaw must have been of unusual size. All in all, the skull, though more gorilla-like than any other of distinctly human level, combined many features of the crania of the modern Australian aborigine and the extinct Neanderthal man of Europe. With a skull capacity of 1,300 to 1,350 c. c. and a skeleton of very modern type, indicating quite erect stature, Rhodesian man is believed by Keith to represent an offshoot from the basic stem of modern races which became extinct in early Pleistocene times. Its great importance is due not merely to its remarkable combination of ape and human features but to the fact that it shows that Africa, the home of the chimpanzee and gorilla, may have been the area in which the genus *Homo* also first approximated its modern form.

Eoanthropus Dawsoni. This specimen, also known as the Dawn man, and as Sussex or Piltdown man, was found at Piltdown, Sussex, England, in 1911. The remains consisted of parts of a skull and the right half of the lower jaw, with the first and second molar teeth. Accompanying these were very primitive stone implements and evidences of the Pliocene elephant and hippopotamus, an extinct deer, beaver, and horse. There has been considerable difference of opinion as to both the antiquity and the primitiveness of these remains, but the majority put their age as the late Pliocene or very early Pleistocene. They would in that case extend back to about the same epoch as the *Pithecanthropus erectus*, or at least 200,000 years in Keith's chronology, or 500,000 in Osborn's. Professor Marcellin Boule, a distinguished French archæologist and anthropologist, thinks the Piltdown remains are those of a precursor of modern man; certain English anthropologists, Smith Woodward and Elliot Smith, make the Piltdown race the precursor of the Neanderthal, as also of *Homo sapiens*. Professor H. F. Osborn shares the widely accepted view that Piltdown

man was a direct ancestor neither of Heidelberg man nor of Neanderthal man, nor indeed of modern man, but belonged to a distinct race long since extinct.

The skull capacity was variously estimated at from 1,070 c. c. to 1,300 c. c., or about that of the Australian aborigine of to-day. Some estimate it as high as 1,500 c. c. These wide variations are due to the fact that the skull fragments do not fit each other. They are worn and broken at the edges and too few in number. The skull bones were remarkably thick and heavy. The forehead was more prominent than in the Neanderthal man and the brow-ridges less massive. On the other hand, the jaw was distinctly primitive, closely resembling that of the young chimpanzee. It was remarkable for the complete absence of a chin and of the protuberances for the attachment of tongue muscles, so that speech was only slightly developed. In other words, we have here a skull almost modern in form, though somewhat small in size, with semi-human teeth set in a jaw distinctly anthropoid. For this reason there is some doubt whether the jaw and the skull belong to the same type. If they do, no discovery yet made has revealed so clearly the fact that a great variety of combinations of traits were tried out by the evolutionary processes and rejected before the combination found in modern man was hit upon.

Heidelberg Man. The Heidelberg, or Mauer jaw, found in 1907 in undisturbed stratified sand along the Mauer River near Heidelberg, Germany, 69 feet below the surface, constitutes the evidence of the race known as *Homo heidelbergensis*. It may seem preposterous that the anatomist should attempt to reconstruct an entire head with no other data than a nearly perfect jaw bone with all the teeth in place, but the experts claim that the jaw is the most important single bone in the body for determining the character of paleontological remains, and that from it not only the head, but the height and other bodily characteristics may be determined. This fossil jaw, with teeth intact, is wide, massive, and devoid of chin, as in the chimpanzee; it is even wider, heavier, and stronger than that of the gorilla or chimpanzee. The teeth are small in comparison with the jaw and are distinctly human in arrangement and character, being like those of a fourteen-year-old youth. Here is an ape's jaw set with human teeth, and yet the absence of the frontal attachment for tongue muscles indicates that the power of speech was wanting or only slightly developed.

The antiquity of these remains is very great, being comparable in this respect to the *Pithecanthropus* and *Eoanthropus*. They are believed by some to represent a separate but long since extinct



FIG. 7.—Side view of Heidelberg jaw (center) compared with that of a chimpanzee (right) and of an Eskimo (left), the latter an individual of exceptionally large proportions. From H. L. Osborn, *Men of the Old Stone Age*, Charles Scribner's Sons, 1918, by permission.

species, and by others to represent the forerunner of the Neanderthal race. Opinion differs as to whether or not Heidelberg man is earlier and more primitive than Sussex man. (Figure 7.)

Neanderthal Man. *Homo neanderthalensis* has left the most numerous remains of any of the fossil races of western Europe. The first remains of this type were discovered in 1848 at Gibraltar, and there are now nearly a score of significant skeletal remains of this race, besides many more fragmentary ones. These indicate that it inhabited western Europe from central Germany to the Straits of Gibraltar and from the island of Jersey to Croatia. Two skulls found in Russia in 1924 and 1925 and another found in Galilee, Palestine, in 1925, closely resembled the Neanderthal. This race was characterized by a brain capacity of 1,300 to 1,650 c. c., a short stature of five feet, two to five inches, and a thick-set body with powerful bones and muscles. It had usually a long head form; low and retreating brow, with heavy brow-ridges and deep eye-sockets; a large jaw; and a curved thigh bone and slightly bent knee, indicating a shuffling gait. The head was permanently tilted back as is that of the anthropoids; the neck muscles were attached high up on the back of the head; and correlated with this were the large jaw, tongue, and throat. Among the most notable specimens are the remains found at La Chapelle-aux-Saints in France, at Spy in Belgium, at Gibraltar in Spain, and at Krapina in Croatia.

It was formerly the custom to put this race among the direct

antecedents of modern man, as a parent stock, widely diffused, from which different modern races were slowly differentiating in different parts of the world. This view was very recently championed by a leading American anthropologist, Aleš Hrdlička.²⁴ Certainly the extinct Tasmanians and the Australian aborigines have a considerable resemblance to the Neanderthal type. Professor Keith²⁵ has shown that even in modern man an excess of activity of the pituitary gland tends to produce Neanderthal features. The prevailing view now is that Neanderthal man is a distinctly fossil type not in the direct line of ancestry of modern man. He flourished during the Mousterian culture periods and seems to have become extinct more or less suddenly some 20,000 years ago. He was so quickly superseded by several varieties of men of modern type that it is at least plausible to suppose that he was exterminated by these superior types invading his territory from the east and south.

Among the most interesting remains of Neanderthal man were those discovered at Krapina, in Croatia, 1899–1906. We reproduce Professor Keith's story of it.²⁶ "We owe the discovery to Professor Gorjanovic-Kramberger, a Professor in the University of Agram. In 1899, he commenced the exploration of a deposit situated on a terrace on the side of a valley near the little town of Krapina, and through which the Krapinica flows. A section of the deposits exposed in his investigations is shown in the drawing. (Figure 8.)

"As will be seen from the drawing, the deposits he explored on the side of the valley, twenty-four feet in depth, represent the accumulations on the floor of a rock-shelter which had been occupied by ancient man. On the original floor of the shelter lay a bed of gravel deposited when the Krapinica flowed flush with the floor of the cave—eighty feet above its present level. The superimposed strata, showing nine different horizons marked by human occupation—hearths, tools, and débris of meals—proved to be the richest treasury of the Neanderthal race ever opened by the explorer's spade. Over two hundred fragments of human

²⁴ Huxley Memorial Lecture, Royal Anthropological Society, London, Nov. 8, 1927.

²⁵ "The Differentiation of Mankind into Racial Types," *Report*, British Association, 1920, pp. 275–281; and "The Evolution of Human Races in the Light of the Hormone Theory," *Bulletin*, Johns Hopkins Hospital, Vol. 33, 1922, pp. 155–159 and 195–201.

²⁶ *The Antiquity of Man*, Vol. I, p. 195.

skeletons were found, representing at least ten individuals of all ages and both sexes. One hundred upper and one hundred and twenty lower human teeth were collected, all of them showing, in a varying degree, the characteristic form we now associate with the Neanderthal race. Over two thousand fragments of bones of the animals of the period were found, including those of the same ancient form of rhinoceros as occurred at Taubach (the woolly

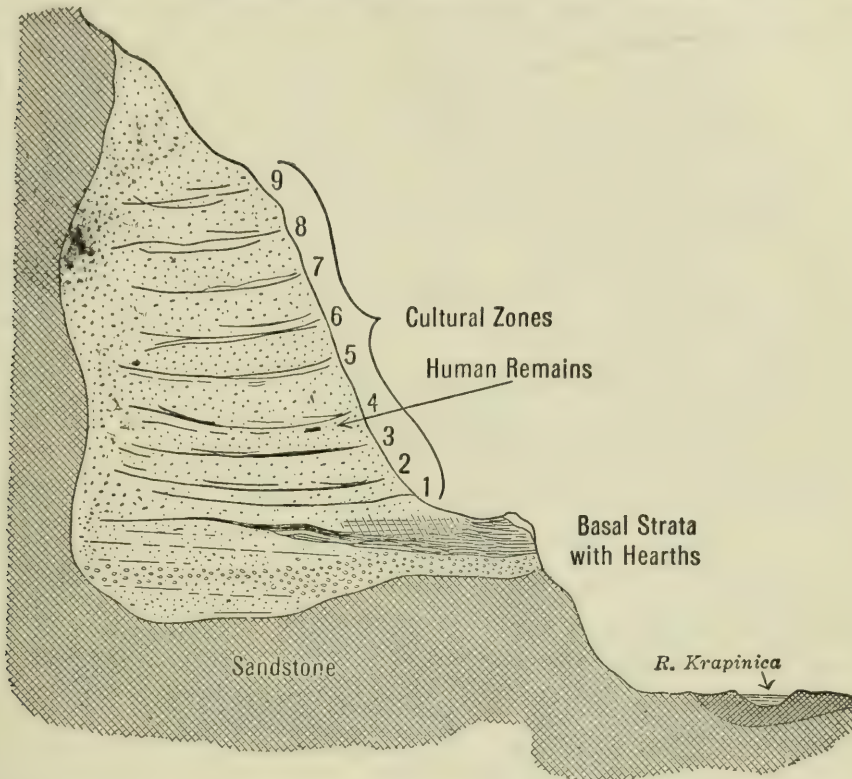


FIG. 8.—Section drawing of the deposits in the rock-shelter at Krapina. The numbers 1 to 9 indicate the deposits formed during periods of human habitation. From *The Antiquity of Man*, by Sir Arthur Keith, J. B. Lippincott Co., 1925, by permission.

rhinoceros). The cave-bear occurred abundantly; it was evidently a favorite article of diet. The rhinoceros bones had been broken open to extract their marrow. The mammoth and many ancient and modern animals were also represented. Some of the human bones were charred, and some had been apparently split open: on this slender basis the Krapina men have been suspected of cannibalism. The implements are not of the typical Mousterian forms, but experts ascribe them to the culture of that period. Some evidence was noted of bone having been shaped for use as a tool; perhaps wood was also worked.

"Krapina was the first site to provide an opportunity for studying the children and the youth of this strange species of man. As is well known, there is a close superficial resemblance between the skulls of man and anthropoid ape during infancy and childhood. The brutal and distinguishing features appear on the ape's skull during the years of growth; the human skull during that period changes to a less degree. Hence it is not surprising to observe that the children at Krapina are, in the form of head and face, more like men of the modern type than is the case with their parents. The great simian eyebrow ridges do not assume their massive size and characteristic Neanderthal form until the later years of adolescence are reached. The skulls of the women retain the cranial features of the young to a greater degree than is the case with the male sex. Hence the Neanderthal women were less distinctly marked off from the modern type of mankind than was the case with the men.

"Indeed, to account for the variety of forms found at Krapina, Professor Klaatsch has suggested that some of the individuals may represent captives which Neanderthal people had made from their enemies—the contemporary representatives of *Homo sapiens*. Professor Kramberger is of the opinion that, amongst the individuals he discovered, there are some which bridge the gap between these two types of man—the Neanderthal and the modern. The writer has observed no fact which supports such an opinion; the closer the records from Krapina are studied, the more one becomes convinced that there are no intermediate nor hybrid individuals represented. The skulls are fragmentary; not one is complete. Yet they are sufficiently perfect to show that they carry all the marks of the Neanderthal race.

"Further, as we saw from the Gibraltar skull, these Krapina people give us the most certain assurance that the Neanderthal species of man, like the modern species (*Homo sapiens*), was separated into distinct races. The Krapina and Gibraltar races differed from their contemporaries in France, Belgium, and Germany. As in modern races, there were, in the Neanderthal species, both long-headed and round-headed races. The skull from the Neanderthal cave is a sample of the long-headed race; those of the Krapina people represent a short-headed variety; the Gibraltar skull belongs to an intermediate group."

The First of the Modern Europeans. It is by no means clear which of the prehistoric types may claim to be the first representative, or undoubted ancestor, of the present Caucasian types in western Europe. One of the claimants is the Crô-Magnon man, whom Professor Osborn has made the hero of his *Men of the Old Stone Age*. This type is notable for its tall stature of at least six feet, and its large brain, averaging not less than 1,750 c. c., or 15 per cent more than modern Europeans. There was a certain disharmony between the shape of skull which was very long and notably narrow in front and the shape of the face which was short and broad. Moreover, there was considerable difference in the stature in different places and cultural epochs. It is for these reasons that Professor E. A. Hooton²⁷ thinks this type was the more or less frequent result of a cross between a long-headed and a round-headed type. This crossing would account for the wide variation in stature and for the disharmony of face and skull. It would also explain Hooton's contention that this type can be found now in almost any part of Europe or this country. The fact, however, that twenty skeletons have been found in France, Germany, and Italy seems to most students to establish its existence and character as a distinct type.

Crô-Magnon is generally believed to have been well armed, possibly, but not probably, with the bow and arrow, to have appeared suddenly in western Europe, by migration, and to have driven out or exterminated the Neanderthal type. He was a cave dweller, was scattered widely in western Europe 15,000 to 20,000 years ago and later, and has left some very remarkable evidences of his artistic talent in cave drawings, painting, and sculpture. He is considered one of the earliest ancestors of *Homo sapiens*, and is believed to be a considerable element in the present populations of the Dordogne region of France, of Scotland, and of the Canary Islands.

If one is searching for the earliest form of *Homo sapiens* now existing in his pristine form anywhere in the world he will probably find him in the Australian aborigine. He is generally viewed as the most generalized form of modern man, retaining more of the common characters of European and African than any other known type. We shall meet him again in a later chapter. For

²⁷ *The Ancient Inhabitants of the Canary Islands*, Peabody Museum at Harvard University, 1925.

a representation of both the skull forms and the relationships of modern and fossil men and the anthropoids, see Figure 9.

Other Fossil Men. In addition to the foregoing types several other fossil types have been discovered in western Europe. In skulls found at Ofnet in Bavaria, Furfooz in Belgium, and Grenelle in France there is evidence that a primitive man of round-headed type penetrated into western Europe in prehistoric times, even before the end of the Glacial Epoch. By the close of Neolithic times 4,000 years ago these round-headed immigrants from Asia were holding a large part of eastern and central Europe. Another very remarkable discovery was the finding in a grotto at Grimaldi, Italy, along the Mediterranean littoral, of the remains of men, women, and children of Negroid type. They belonged to what is called the Grimaldi race. It seems highly probable that this race may have played an important part in the early racial history of southern Europe and northern Africa, as it gives evidence of being intermediate between White and Negro.

Thus far there have been no authenticated discoveries of fossil and extinct types of man in the western hemisphere. There have, however, been various questionable indications that such finds should not be viewed as impossible. Reputed finds of ancient men in New Jersey, Florida, Nebraska, Patagonia, and elsewhere have either been rejected as non-human, or as Indian remains resulting from deep burial or chance dislocation.²⁸ We may say, therefore, that there has thus far been no convincing evidence that America was inhabited before the coming of the ancestral Indians from northeastern Asia in fairly recent times.

As matters of curiosity, but not without their significance, we may note here that the remains of fossil men indicate that the differences between the sexes in man were the same, so far as skeletal remains can indicate, in very early times as they are today. The bones of primitive man were stronger and heavier and similarly differentiated in form from those of woman. Such evidence effectively disposes of the notion carefully engendered in certain feminist quarters that there was a time when woman dominated man by physical strength. There is also considerable evidence that prehistoric man was right-handed. Apparently,

²⁸ See Aleš Hrdlička, "Skeletal Remains Suggesting or Attributed to Early Man in North America," *Bulletin*, No. 23, Bureau of American Ethnology, 1907.

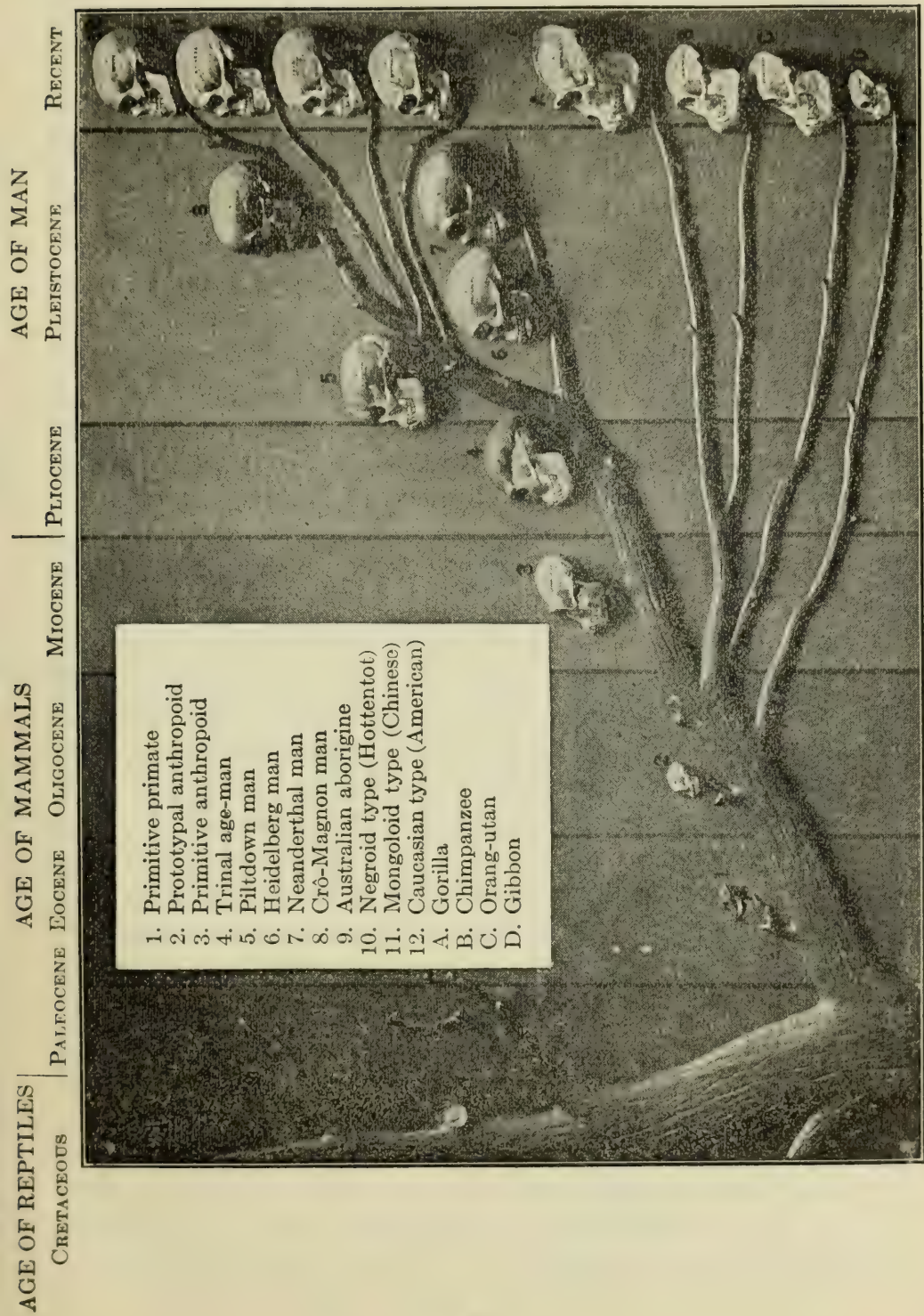


FIG. 9.—The "Family Tree of Man" arranged by Professor William K. Gregory; from a photograph kindly supplied by the American Museum of Natural History.

from his earliest differentiation, man's right arm was somewhat more specialized for use in offense and defense than his left.

This brief survey of existing evidences of fossil men shows that the whole subject is still in its infant and dubious stages. Further research may very likely establish new types; it may even show that some of the types now believed to be distinctive are not. The evidence warrants the observation, however, that numerous hereditary combinations had evolved and were destroyed before existing man came into existence. In the human pedigree as elsewhere the processes of nature show a remarkable versatility in experimenting with every variety of trait and attribute. There has been, however, so little change in fundamental human traits during so many thousands of years that we seem warranted in stating that important mutational changes have apparently ceased to occur in the human species. This does not mean that there are no changes in human quality from generation to generation, because such changes may be brought about by differences in birth and death rates among elements already existing in the population. It means merely that man is apparently not now varying toward a species fundamentally different from *Homo sapiens*.

We are also warranted in observing that existing man is probably not directly descended from any of the extinct fossil types. He represents the unspecialized line of descent which was preserved from destruction by the very fact of its unspecialization.

Suggested Classification of Human Types. There are many other evidences of prehistoric men in western Europe. We have, in fact, given only a glimpse of what has become an extensive and highly specialized field of research. For its value in giving a degree of order to the arrangement of the types above mentioned and some others, we venture to make the following temporary classification of existing and fossil types:

I. Extinct Very Primitive Types

1. *Australopithecus africanus*
2. *Pithecanthropus erectus*
3. *Homo rhodesiensis*
4. *Eoanthropus dawsoni*
5. *Homo heidelbergensis*

II. Extinct Intermediate Types

1. *Homo neanderthalensis*

III. Advanced Types

1. Fossil forms
 - a. Galley Hill Man
2. *Homo sapiens*
 - a. Earliest Types in Europe
 1. Crô-Magnon
 2. Brünn
 3. Combe-Capelle
 4. Grimaldi
 - b. Modern Races

SUMMARY

The scientific viewpoint as developed in Chapter I points to a naturalistic origin for man. The evidences for such origin have been briefly surveyed in Chapter II. From whatever angle man is studied it appears that his similarities with other mammals, and especially with the anthropoids, are so numerous and so fundamental as to put any except the naturalistic view on the defensive. His general bodily form, the arrangement of bone and muscle, the functioning of his various organs in health and disease, his embryological development, and even his intellectual processes and emotional expressions all indicate man's homogeneity with the primates. Of these multiple similarities those of embryological development are the most marvelous. They are not, however, more significant than the similarity in brain structure.

We have seen that man has been on the globe some thousands of generations. During this time many species of *Homo* have come and gone. As yet we have obtained only a faint suggestion of these extinct types; the future will doubtless reveal vastly more. The human story is long enough to permit wide diversification of type and varied enough to contain many tragic chapters. We may well ask, if races have in the past flourished for many thousands of years and then died out, may not existing races likewise ultimately become extinct? The answer is plain. Races are disappearing almost before our very eyes. The Tasmanians became extinct a generation ago, and many savage peoples of the Pacific islands are dwindling rapidly.²⁹ Man has been man's most formidable enemy. Nature's methods are wasteful and haphazard, but the evidence seems clear that the extinct types were one and all inferior in mentality to modern man.

²⁹ See W. H. R. Rivers, *Essays on the Depopulation of Melanesia*, Cambridge Univ. Press, 1922.

As to the vexed question of Monogenism versus Polygenism, we saw that the two theories resolve themselves into one, if we go back far enough along the line of descent. All known races, living and extinct, can be traced back to the same ancestral stem. Their lines of differentiation separated a long time ago; they are now so different that they might be classed in different species; and yet they have retained such fundamental evidences of their common ancestry that the doctrine of the brotherhood of man has a realistic basis in anthropological fact.

Theories of the probable zone of man's origin change with every fresh evidence of his prehistoric past. The mythical Garden of Eden in Hebraic tradition was placed in the vicinity of Mt. Ararat, western Asia. An early scientific view favored Africa. After the discovery of *Pithecanthropus erectus*, southeastern Asia seemed the most probable area. More recently a considerable amount of evidence has suggested western Europe or northern Africa. Within three years, new finds in southern Africa have revived the African hypothesis. At the same time there are various theoretical arguments in favor of central Asia. We may say, therefore, that there is to-day no "most probable" zone. On this matter we can only speculate, await further facts, and suspend judgment.

Wherever he arose, man's history has been a stormy one. He has not shown himself to be an angelic creature of soft sentiment and fearful heart. On the contrary, he has been well-endowed with what are everywhere looked upon as the "manly" qualities of physical strength, courage, the spirit of adventure, and loyalty to his own kith and kin. If these qualities have made him a fighting animal, they have also enabled him to possess the earth. They have made the clash of races the most absorbing and thrilling aspect of the human epic. At the same time, these qualities now stand in the way of world unity and an era of enduring peace. Even in the very wake of the most destructive war in all history, racial and national loyalties are so strong that the nations are eagerly arming for the next conflict and viewing with suspicion all suggestions for the perpetuation of peace with honor.

Finally, we noted some of the more distinctive fossil types. Two of these were found in South Africa quite recently, one was found in Java in 1892, and three others were unearthed in western Europe not long ago. All these discoveries are so recent as to give promise of more abundant evidences of man's past when other

parts of the eastern hemisphere can be adequately explored. Just as Crô-Magnon seems to have been the first of modern Europeans, so may we be able some day to make a valid estimate of what were the first types in Asia, Africa, and Australia.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. How is it possible to reconstruct a fossil human type from a few bones?
2. By what methods does the paleontologist determine the age of fossil remains?
3. Does the table on p. 62 furnish ground for supposing that the prehistoric races of Europe were subject to vigorous environmental selection?
4. Are round heads more intelligent than long ones, or less?
5. Are vestigial organs a good argument for evolution? Why?
6. If racial differences are due in part to differences in the endocrine balance, would it not be possible to artificially reduce such differences by feeding glandular extracts?
7. In what ways do the different races, Negroid, Mongoloid, and Caucasian, resemble and differ from the anthropoids?
8. Would it be possible to breed a more peace-loving race? What would be the social consequences?
9. Does history indicate that man is becoming less warlike?
10. What are the causes for the threatened extinction of the Pacific Islanders?

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 —, *The Origin of Man*, 2d ed., Chaps. 1 and 3, pp. 1-10, and 18-30.
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CHAPTER III

THE RACES OF MAN

MEANING OF THE TERM RACE

Race a Zoölogical Term. Few words are more loosely used than the term "race." Its use consequently gives rise to muddy thinking and unprecise generalizations. Moreover, it is so charged with dynamic emotions that a dispassionate consideration of its social significance is difficult. It is highly important, therefore, to clarify our conception of its meaning. In the first place, race designates a group of human beings set apart from others by one or more hereditary physical differences. It is a zoölogical term and it is thus similar to such terms as variety, sub-species, species, genus. These terms designate groups of quite different inclusiveness, but the term race is commonly used, in the case of the human species, to designate all groupings with all degrees of inclusiveness. Thus we have the human race, the Caucasian race, the Nordic race, the Caledonian race. But in all cases the word means a group of men set apart by certain physical traits implied in the qualifying adjective. Thus, when one speaks of the human race, he means to set off all mankind as distinct in certain physical respects from the rest of the animal world. In this case the range of variability is very great and the elements found in common among all members of the group are general rather than specific. The terms Caucasian or Mongolian applied to races are likewise recognized as broad and general in nature. They call attention to certain obvious differences between some of the major ethnic stocks of mankind, which include within themselves a variety of minor divisions.

There is thus no simple and exhaustive conception of race. If we begin with the concept "Primates," we include man and the anthropoids together, and in so doing call attention to their numerous fundamental similarities. We thus set off the "race" of Primates from the rest of the animal world. If, now, we set off human beings from the Primates, we can steadily narrow the number of individuals included and hence the range of variation by a more

and more precise definition of requisite traits. If, for example, we add to the trait human, the trait white, or near-white, skin, we set apart the Caucasian division. Let us add blond hair, and our group diminishes, the range narrows; if we add blue eyes, it contracts still further. It should be evident that we can go on adding traits of more and more specificity until we distinguish one stirp or kinship group from another; and in this way we could set families off one from another as different "races"; until, in last analysis, we come to the individual, who is the only creature in the world like himself in all respects. Thus we get a series ranging down from Primates, through Humanity, to such narrower groups as Caucasian, Nordic, Nordic varieties and sub-varieties, or stirps, or clans and families, to individuals. Such a series would be comparable to the zoölogist's series: kingdom, phylum, class, order, genus, species, variety, individual.

The term race, in the sense of a group with distinctive hereditary traits, would apply to every category in such a series, except the last. Each category is included in the one which precedes it and to that extent bears a fundamental resemblance to it; but each is also distinctive in possessing traits peculiar to itself. One may thus say that all men are human, and, since he would mean by this that they are set apart from the anthropoids, he would be warranted in saying that their similarities one with another are obvious in their universal contrasts with the apes. This would not be a denial of man's fundamental unity with the anthropoids but would emphasize his differences in certain respects. Similarly with each narrower category.

A Difficulty in Classification. All the known classifications of the races, including those of Bernier in 1684 and Linnæus in 1735, have been more or less confusing because of this apparently insuperable difficulty of finding terms that were at once inclusive of all similars and exclusive of all dissimilars. The term Caucasian, originated by Blumenbach (1775), included such contrasted types as Arabs and Swedes. Cuvier (1769-1832) found in Noah's three sons, Shem, Ham, and Japheth, the progenitors of three primary varieties of man, a classification still extant in certain religious circles, but neither inclusive of all races nor discriminative among those included. With the growth of knowledge and development of scientific methods there has been a tendency among anthropologists to multiply the races and varieties of man.

The primary reason for this was stated by J. C. Pritchard ¹ when he said in 1843: "The different races of man are not distinguished from each other by strongly-marked and permanent distinctions. . . . All the diversities which exist are variable, and pass into each other by insensible gradations." Indeed, this same fact had been perceived a generation earlier by Blumenbach who said: "The innumerable varieties of mankind run into one another by insensible degrees." Topinard ² expressed the same idea in more subtle terms: "Race in the present state of things is an abstract conception, a notion of continuity in discontinuity, of unity in diversity. It is the rehabilitation of a real, but directly unattainable thing."

Two Primary Elements in the Concept of Race. We see then that the concept of race must, first of all, include the idea of distinctive hereditary traits. These we think of as combined into a race *type*. But, in the second place, since the concept must allow for a certain variability among the members of the designated group, to the idea of type must be added that of *variation about the type*. These are the essential elements in the scientific definition of race. If we think of a race as a group set apart by some *single* trait, as stature, these ideas may be represented in their simplest form by the accompanying graphs for Japanese and Norwegian soldiers. The one group has a typical or average stature of 62.30 inches but varies in height from just under 56 inches to 69 inches; the other has an average stature of 67.50 inches and varies in height from under 61 inches to over 75 inches. The black portion of the chart indicates tall stature; the lined portion, medium stature; and the blank portion, short stature. While none of the Japanese were tall, over 200 in each 1,000 of the Norwegians were tall. At the opposite extreme, slightly more than nine-tenths of the Japanese, but only two-tenths of the Norwegians, were short. (Figure 10.)

A Third Element in the Concept. This simple illustration also serves to bring out the overlapping of races, though the overlapping is here much less than will be found in many cases. If we had only stature to go by we should not be able to determine whether many of the individuals measured belonged to the taller or to the shorter race. If we conceive curves similar to the fore-

¹ *Natural History of Man*, London, 1885, p. 644.

² "De la notion de race en anthropologie," *Revue d'anthropologie*, 1879.

going to be placed on the same chart to represent the distribution of the heights of such medium-statured peoples as the South Italians and the Chinese, we should greatly emphasize the overlapping of the statistical distributions. This fact of overlapping constitutes, then, a third primary feature in our concept of race. As the above quotations from Blumenbach and Topinard indicate, the races or types of man shade into one another—there is a “continuity in discontinuity.” This is true of all the customary indices of racial difference, viz., stature, cephalic index, hair color,

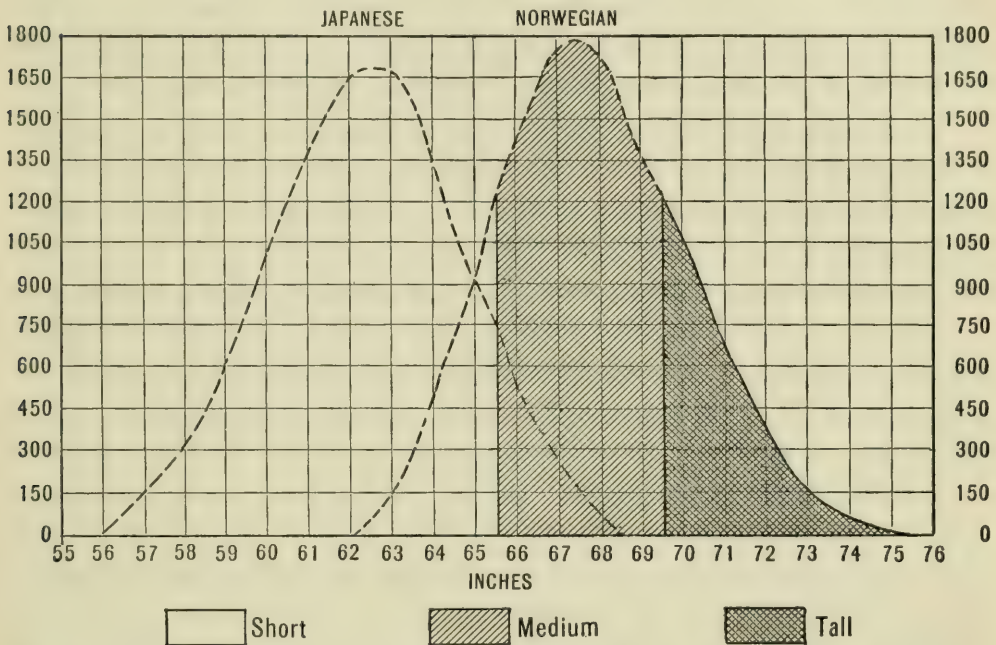


FIG. 10.—Comparative distribution of statures of Japanese and Norwegian soldiers. (After Hoffman.)

eye color, skin color, nasal index, hair form, alveolar index, etc. As regards any one index, therefore, it is possible to arrange the types of man into a series with large overlapping areas, as in the graph, p. 132, so that it would be impossible to tell where one race ends or the next begins. This overlapping is primarily a consequence of the fact that all men may be traced back through thousands of years to a common ancestral stem; in spite of their differentiation into varieties, all men retain some combination of those traits which distinguish men from the other Primates. Or, in other words, the overlapping is due to the universal tendency of all living things to vary about their own hereditary center.

It follows from this extensive overlapping of racial categories,

when only a single trait is measured, that *we must in actual practice combine a number of traits in order to distinguish one race from another*. Norwegians are obviously taller on an average than Japanese, but some Japanese are taller than many Norwegians. White and Negro cannot be distinguished by stature; nor by cephalic index; even as regards skin color and hair form the border areas of distribution overlap. It is this overlapping that makes it necessary to think of a race as a *group set apart by a complex of traits inherited together within a limited range of variability*. Since tall stature shades into short, long head into round, and dark complexion into light, it must be shown that with tall stature are found also a certain head form, eye color, shape of hair, etc.

The primary difficulty in the use of the term race is the difficulty of thinking in terms of relatives rather than absolutes, of probabilities rather than certainties. The average mind wants its science like its religion and its ethics served up to it in terms of absolutes and eternal verities, whereas the actual world is a world of variability, probability, constant alteration, and relativity. Racial types are themselves in a state of flux and the differences between types are relative rather than absolute. This does not mean that the differences are without significance, but that they must be conceived to be what they are, variations of certain fundamental attributes which belong to all mankind. Just as all individuals of a certain group have stature and intelligence, but some are taller, some brighter, than others, so all the different varieties of men have stature and intelligence but some are taller than others, some brighter.

Race Crossing and Confusion of Types. But even with a combination of traits there is considerable difficulty in distinguishing one race from another in areas where two or more have long been in contact with each other and have produced intermediate types of varying degrees of composition. It is here that we come upon the central difficulty of race discrimination, namely, the fact that through long epochs one human stem has crossed with another so that traits tend to spread widely from the center of their first specialization. In other words, as regards man, there is no such thing as a pure line in either modern or extinct races. There has always been a certain amount of cross-breeding, though among peoples living in great isolation, such as the Andaman Islanders, the extinct Tasmanians, or certain Eskimo

tribes, this must have been slight. All peoples living in accessible, and especially those living in fertile, areas have been so subject to immigration, war, and conquest, as well as wife stealing and other variations of matrimonial institutions, as to make impossible the maintenance of racial purity in an unalloyed state.

We have seen that Sir Arthur Keith assumes that the human stem differentiated from the anthropoid stem about 1,250,000 years ago and that the fundamental types of modern men were differentiated from each other at least 200,000 years ago. Since these are much smaller figures than those usually given, it seems certain that there has been plenty of time for both race specialization and race crossing. White, yellow, and black, each, during all this time, has undergone mutation, variation, and selection, under the influence of varying degrees of geographic isolation. Groups have repeatedly split off from parent stems, undergone greater or less differentiation, and then crossed with other varieties of the same general stock. Crosses have been now between closely related types and now between those widely separated.

The result is that the populations found within any considerable geographical area will present a certain broad similarity which sets them off from the populations of other distant areas, as Africans from Europeans, Chinese, or Hindus. But within each such great area viewed by itself there is great diversity. These major areas may be broken up into smaller ones, each showing a certain distinction from others. This is clearly illustrated by the case of Europe where the South, Northwest, and East form more or less distinctive anthropological provinces, including respectively the Mediterranean, Nordic, and Alpine stocks. Then these provinces may be further subdivided until one reaches those small and very special differences which distinguish the people of one mountain valley from their neighbors of another. Here again we see that the concept of race must vary constantly with the number of traits which are brought into consideration and the extent of their variation.

And as we thus give definiteness and concreteness to the concept, we meet with an increasing difficulty of finding perfect exemplars of it. Professor Ripley found that the European peoples were so mixed that the most frequent combination of hair color and eye color would exclude two-thirds of the population in nearly every area. If to these two traits be added head form,

then only a small portion of the population in any European area would be found to combine all three traits. "Imagine a fourth trait, stature, or a fifth, nose, to be added, and our proportion of pure types becomes almost infinitesimal." So that when Ripley asked Otto Ammon, a distinguished German anthropologist, for a photograph of an individual of pure Alpine racial type, the latter, although he had measured thousands of Rhenish recruits, replied that he had never found a specimen of the Alpine type perfect in all details. "All his round-headed men were either blond, or tall, or narrow-nosed, or something else they ought not to be."³

A Race Type an Idealization. This means that when we define a race in terms of a series of physical traits we necessarily describe an idealized type. As Topinard had said, a racial type "is the rehabilitation of a real, but directly unattainable thing." Thus the Baltic, Teutonic, or Nordic race is said to have tall stature, long head, narrow nose, clear blue, green, or gray eyes, and blond hair. All these traits are variable, even the blue eyes, though the range of variation is narrowly restricted in each case. If, now, one studied the population of a presumably Nordic community, in order to discover the pure Nordics, he might begin by singling out all the tall people; from among these he might select out those with long heads; and from among these in turn those with narrow noses; and so on. He would end by finding the Nordics and they would be only a small fraction of those with whom he began. If, now, these were judged by an exacting standard, such as is used in judging animals at the cattle show, an even smaller fraction of them, a truly infinitesimal portion of them, would exemplify the true or perfect type. A race is much like the "average man" of common parlance. All of us represent the average man of our group in some respect; many of us in more than one; but almost none, if any, represents him in all respects. He is purely ideal, because so many variants of him are embodied in all sorts of persons. Even in Sweden which has been inhabited primarily by persons of Nordic stock, we learn that, although tall stature, long heads, and blond complexions are very widespread, only 10 per cent of the population combine all three of these qualities in the same person.⁴

Summary. In other words, when one speaks of a race, he must bear in mind the following considerations. There is, first,

³ W. Z. Ripley, *The Races of Europe*, D. Appleton and Co., 1899, pp. 107-108.

⁴ *Anthropologia Suecica*, Stockholm, 1902.

the general fact of human variability. There is, secondly, the idea of type about which individual copies, more or less inexact, are grouped in a more or less regular manner. There is, thirdly, the overlapping, with reference to any specific traits, of the exemplars of one type and of related or contiguous types. This in itself would tend to prevent the easy separation of types, but this task is made immensely more difficult by the fact of race crossing. This brings it about, fourthly, that the determination of race types in any given area (except long isolated ones) becomes a process of the abstraction of traits from existing individuals, and their recombination into a generalized or ideal type represented in perfect detail by few or no living individuals.

Race, Tribe, Nation, People. The foregoing discussion will make clear the impossibility of identifying race with tribe, nation, or people. A tribe is a primitive political group whose unity is based primarily on their belief that they are of one blood. But tribal organization did not prevent a certain amount of racial intermixture. No doubt isolated tribes, such as the Eskimo, approach a high degree of racial purity, but all those tribal folk who have played a rôle in European history were beyond doubt more or less mixed in race. This has been clearly established as regards the Dorians, Achæans, and others that moved into Greece in ancient times; it is even clearer in the case of the Goths, Visigoths, Franks, and other Germanic and Celtic-speaking tribes that moved about western Europe in the later days of the Roman Empire.

A nation is also a political group, but its unity is based on a common territory. A nation, like a tribe, is also marked by a high degree of unity of language, religion, and social tradition, and always by self-government. The term nationality designates a group having all the qualities of a nation except independent government of its territory. Thus France and Germany are nations, but the Jews and the French-Canadians are nationalities. The term people is even more inclusive as it includes all persons of the same nation or nationality wherever found. We speak of the English people, the American people, the Jewish people. No such terms as tribe, nation, nationality, and people can be identified with race. There is no such thing as a French, German, English, or American race, a Jewish race, nor indeed a Chinese or Japanese race. To be sure, all these groups differ one from an-

other in racial composition. Moreover, the members of some of them, as Japanese or Chinese, approach a considerable degree of similarity to one another when they are contrasted as individuals with members of another group. There is, nevertheless, too great heterogeneity in each of them to warrant its designation as a race, if we are to use the term with strict accuracy.

An illustration of this reasoning is seen in the current question whether or not the Jews are a race. They are commonly so considered in this country and elsewhere. But anthropological study reveals the fact that they vary greatly from country to country, so that, as a whole, they manifest a very wide range of stature, head form, complexion traits, and body build. The German Jews, for example, are of good stature and weight and are frequently quite blond. The Polish Jews are of unusually short stature, slight in body build, and distinctly brunette in complexion. The east European Jews tend to have broad, round head form, while the Spanish-Portuguese and western Jews, though differing in complexion and stature, tend to be long-headed. Indeed, there is a striking tendency for Jews to take on a certain similarity to the people among whom they live, a similarity difficult to explain except on the ground of race mixture.

At the same time it must be granted that the Jews show a degree of resemblance to each other. This is much as the Americans, from whatever part of the country, show a degree of resemblance to each other. But just as it would often be impossible to distinguish an Englishman, a Canadian, an Australian colonist, or an American by any mark of race, so it would frequently be impossible to tell Jews from other persons of the same nation, or even from persons of a different nation. Even the so-called Jewish nose, which is supposed to have been derived from the ancient Hittites, is found on only 40 per cent of Jews; and this same type of nose is found in about the same degree of frequency among Armenians, who, of course, derived it from the same ancient source.

Judaism is a religion and a social tradition, and its followers constitute a people who have retained a certain community of blood primarily because the social pressures about them have compelled them to marry largely among themselves. In areas where they are numerous and denied full civic rights, as in Poland, they take on the characteristics of a nationality. If they should

succeed in repopulating Palestine and achieving a politically independent state, they would there become a nation. Their similarity one to another is due to the fact that they always constitute a more or less distinct community and hence tend to intermarry. In any given locality, the Jews, therefore, seem to their neighbors to constitute a separate race. This opinion is often entertained even though a small number of Jews will, as a rule, contain both blond and brunette, hook-nosed and straight-nosed, tall and short, individuals. Their great diversity of traits is evidence that they are heterogeneous in blood. They have also been subjected to longer and more rigorous selection for survival in urban conditions than most western peoples. In consequence, they show more frequently than most groups a certain nervous energy, cunning, and versatility of great value to survival amidst the competitive struggles of urban centers. They have been notably prolific in men of outstanding ability, not only in business and finance, but also in art, music, literature, science, and philosophy. Whether this is due to the extra stimulus they have received from the social opposition they have had to overcome, or to racial inbreeding, or to their heterogeneity of race, or to all three, must remain a matter of opinion.

BASES OF RACIAL DISTINCTION

Definite Criteria Essential. It is clear to the most superficial observation that the blond-haired, white-skinned Swede, the black-haired, yellow-skinned Chinaman, and the woolly-headed, black-skinned African belong to different races. Moreover, some of the marks of their racial distinction, such as differences in skin color, eye color, and hair texture, are sufficiently obvious. Nevertheless, there are many cases where superficial observation would not enable one to classify an individual as belonging to this or that racial group. Moreover, there are wide differences among the persons included in any one of the above categories. There is no such thing as a Swedish race, because Swedes are sometimes blond and sometimes brunette and show similar variations with respect to every physical trait. Nor is there, strictly speaking, a Chinese race. Consequently, it has been necessary for the anthropologist to work out discriminating measures for the fundamental traits whereby one race may be distinguished from another. We note a few of the more important.

Head Form. Probably the most fundamental of all marks of racial distinction is what is called the cephalic index. This is the ratio of the breadth of the head or the skull to its length. It may be expressed in the following proportion: length: breadth = 100: X, or

$$\text{cephalic index} = \frac{\text{breadth} \times 100}{\text{length}}$$

This measure, devised by a Swedish anthropologist, Anders Retzius, has been in extensive use since about 1840. A large part of its value is due to the fact that the head form is not only inherited but it is little subject to alteration by the environmental changes due to the migration of a race from one habitat to another. The range of the cephalic index is from around 65 to 100 or perhaps slightly above in extreme and abnormal cases. Indices below 75 are called dolichocephalic; those from 75 to 80, mesocephalic; and those above 80, brachycephalic. (Figure 11.)

It should be added that skulls having the same index may vary considerably in conformation. We may also note that there is a very decided tendency for the west European populations to become more and more round-headed, partly because of the high fertility of the Alpine stocks and partly because the round head tends strongly to appear in the hybrids when round-headed and long-headed races are crossed.

In addition to the cephalic index there are numerous other measurements which are made upon the head. Among these the most important are the cranial capacity, the facial angle or extent of prognathism, the length-height index, and numerous other measurements of proportions of parts and angles of conformation which enable the physical anthropologist to make fine distinctions between closely related types.

The *cranial capacity* is important because it indicates size of brain. It is determined for a skull by filling it with fine seeds, sand, or water, and then measuring the latter. For a living person it is determined by the application of mathematical formulæ to measures of the height, width, and length of the cranium. The latter measure is less accurate than the former. In the previous chapters some figures indicating skull capacity in different races were given. The average for European males is about 1,500 c. c.; for Negro males, about 1,350 c. c. For Chinese it appears to be

slightly less than for Europeans. For the Australian aborigine it is somewhat less than for the Negro, and for the pygmy blacks it is still less. The female cranial capacity is about 10 per cent less than the male. The brain and the size of cranium vary considerably, at least in the same race, with stature and general

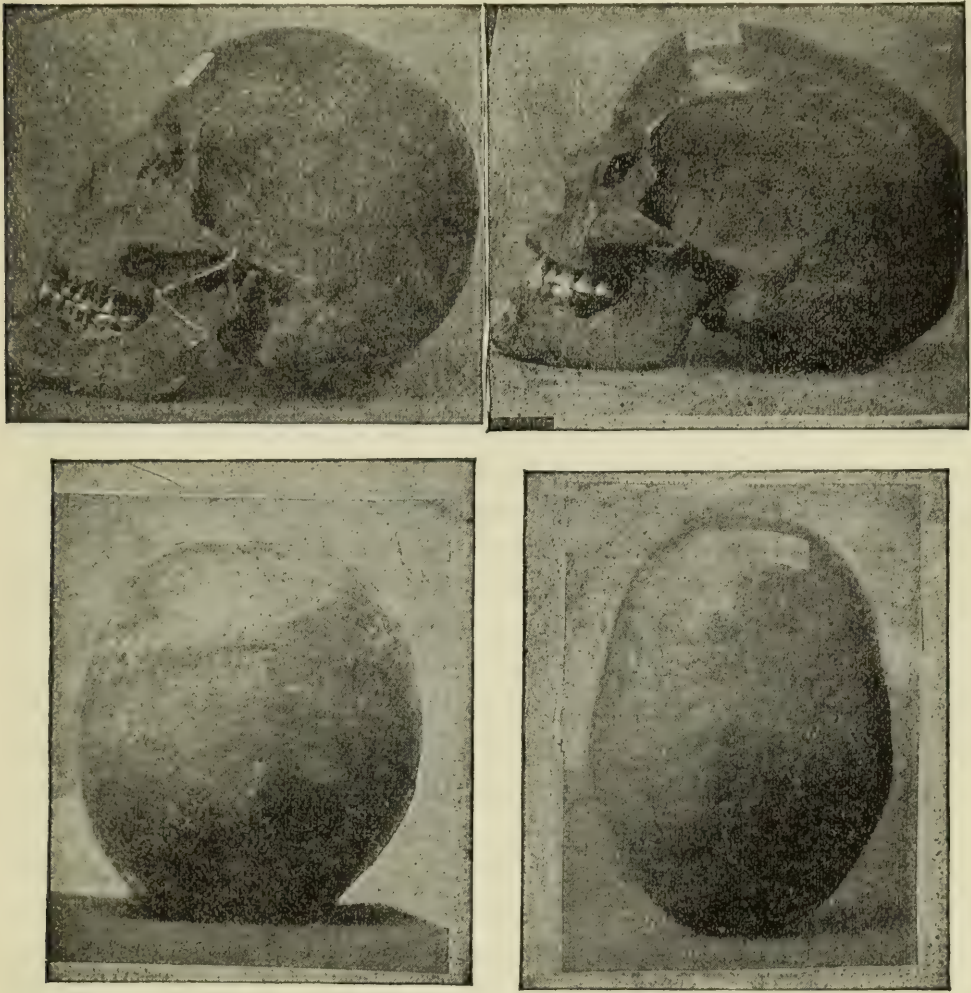


FIG. 11.—Side and top views of a brachycephalic skull (at left), index 87, and a dolichocephalic skull (at right), index 73. From Ripley, *The Races of Europe*, D. Appleton and Company, 1899, by permission.

body size and build. There are also, in all probability, characteristic differences of proportion between size of head and stature for different races. For example, the Eskimos, though short of stature, have as large or even larger cranial capacity than the tall Nordic Europeans. The variations in skull size are very great within any racial group, so that the measurements for

different races greatly overlap. Thus, the cranial capacity of normally intelligent Europeans ranges from 1,300 or 1,350 c. c. to as much as 2,000 c. c. This great variability and extensive overlapping make racial comparisons extremely difficult. The cephalic index and detailed conformation of the skull are more useful in racial discrimination.

Anthropologists are agreed that a race with skull capacity of less than 1,350 c. c. should be classed as small-brained or microcephalic and one of more than 1,450 c. c. as large-brained or macrocephalic. There can be no doubt that such differences in weight and size of brain are of some significance for differences in intellectual power. Brain size varies with race, as do also the proportions of parts. It varies within race with individual stature and general body size. As between races, however, the Eskimos have short stature but belong to the large-brained class, while certain Negro stocks are relatively tall but have small to medium brains. That differences in mental power, however, correspond closely with differences in size among individuals of the same species is not true, because organization of brain structure is in such a case, of more importance than size. As between races, also, brain structure is of first-rate significance for mental power. The brains of the apes differ from those of normal Europeans by the greater smoothness of surface and by the simplicity and shallowness of convolutions. While the sense centers are usually well developed, so that we may suppose apes to have good powers of sight, hearing, smell, and taste, the speech and association centers are relatively undeveloped, so that the powers of speech and conceptual thought are clearly inferior to those of modern man. Precisely the same may be said of the lowest fossil human types.

We may also note that it has been clearly established that the brain weights of persons of low or defective intelligence average less than those of persons of the same race with normal intelligence, whereas in general the brain weights of men of great eminence are above the human average. Thus Professor Poynter⁵ found the average brain weight of 100 American, British, French, German, and Italian scholars to be 1,478 grams (about 1,650 c. c.). Professor E. A. Spitzka,⁶ in one of the most extensive investiga-

⁵ University of Nebraska Studies, 1912.

⁶ "A Study of the Brains of Six Eminent Scientists and Scholars," *Trans. Amer. Phil. Soc.*, Vol. 21, 1906, pp. 175-308.

tions yet made, found about the same average for more than a hundred men preëminent in scientific pursuits. As would have been expected, these figures reveal a certain association between weight of brain and intelligence. This association, however, is broad and general rather than close and exact. In other words, there are large-brained as well as small-brained idiots. Moreover, men of notable achievement have been below the human average in brain weight. On the other hand, Professors Porteus and Berry⁷ have shown that, even in children, those distinguished for superior brightness not only exceed the average in brain size, but that those individuals who find themselves capable of pursuing university courses continue to grow in brain size until age twenty or even beyond, whereas in many others the brain ceases its development several years earlier. There is also the additional fact that about middle life the brain weight normally begins to show a progressive reduction, but such reduction occurs at a more advanced age in men of marked intellectual activity. All these facts point to the conclusion that cranial capacity and size and structure of brain are important criteria of racial distinction. These are traits directly related to the racial cultural capacity. (See Figure 3, p. 54.)

The *facial angle* is the angle made by a line showing the profile of the face with a line running from the base of the nose backwards through the ear passage. It measures the extent of prognathism, or projection of the lower jaw. The Negro, with his larger jaw and smaller cranium, is more prognathous than whites, who are generally classed as orthognathous.

Face. There is usually an association between cephalic index and form of face. In general, long-headed people have long or leptoprosopic faces. Round-headed people, as a rule, have round or chamæprosopic faces. The intermediate class is called mesoprosopic. Such a combination as that found in the Crô-Magnon race, long head and short face, is looked upon as disharmonious.

Complexion Traits. One of the earliest and most obvious bases of racial distinction was skin color. Huxley's classification of the races as White, Black, Yellow, Brown, and Red was based on this characteristic. The principal objection to skin color as

⁷ R. J. H. Berry and S. D. Porteus, "Intelligence and Social Valuations," *Research Publ. No. 20*, Vineland Training School, 1920; for a summary of studies on brain size in relation to intelligence, see F. H. Hankins, *The Racial Basis of Civilization*, A. A. Knopf and Co., 1926, pp. 308 *et seq.*

a basis of racial classification is that it is much more subject to variation under climatic influences than other physical traits. Not only does exposure to the sun and weather greatly alter both the color and texture of the skin, but there are such wide hereditary variations of skin color within any of the major groups of mankind that this index is peculiarly unreliable.

Closely associated with skin color is the color of hair and eyes. It is now clearly established that there is a strong tendency for light shades of skin, hair, and eyes to be associated in heredity, as also for the dark shades. This, however, does not prevent individuals of hybrid blood from having mixed complexion traits such as light hair and dark eyes or dark hair and light eyes. It seems highly probable that man's immediate precursor was dark in both hair and eye color, with yellowish brown or black skin. His hair color, however, was very probably not black; the hair of the orang is reddish while that of the gorilla is often brown or chestnut on head and shoulders. As regards these particular traits, therefore, one may say that the blond north European, with blue eyes, blond hair, and fair skin represents an extreme variation from the original human stem in one direction, while the Negro represents an extreme variation in the opposite direction. In the crossing of different types, brunet traits show some dominance over blond. This apparent dominance, however, may be merely a result of the blending of factors, for hybrids generally have shades of skin, hair, and eyes intermediate between the parental shades. At the same time the lighter shades of eyes show a notable tendency to persist amidst the mixed Nordic, Alpine, and Mediterranean populations of Europe and America.

Hair. There are several features of the hair which are of significance in racial classification, such as color, length, amount, bodily distribution, cross-section, and even tendency to grayness and baldness. The nearly universal color of hair among Negroid and Mongoloid races is black; it is only among European types that variety of color is common. Even among them black greatly predominates in the south and various shades of brown in the north and west. Around the Baltic and North seas flaxen and golden-yellow shades are very common. Red hair is more or less frequent among the Caledonian and Highland Scots, the Welsh, the Jews, the Finns, and in western Asia.

Woolly hair is shortest and straight hair longest. Among

peoples with wavy and curly hair the women have much longer hair than the men, there being a greater difference in length of hair between the sexes than among races with woolly or straight hair. Among these latter groups, as Chinese and Negroes, moreover, the men grow very scanty beards or none at all. The heavily bearded European males are also frequently notable for hairiness of chest, arms, and legs. The primitive Australian is remarkable for abundance of body hair; the Negro is at the opposite extreme.

From the standpoint of physical anthropology, the most important feature of the hair is its cross-section. The individual hair is like a long tiny tube; and the form of its cross-section determines whether the hair is coarse and straight or fine and wavy. This feature of the hair varies a great deal from race to race, but is passed along from generation to generation in relatively pure races with little or no change. The racial type of hair is inherited equally by both sexes, but usually with a difference in quantity. It is one of the least susceptible of all traits to change under environmental influences. Professor Haddon has consequently classified the races of men into primary groups according to the shape of the hair.

When the cross-section is relatively flat, that is, a flat ellipse, it is called *ulotrichous*; when it is oval, *cymotrichous*; and when round, *leiotrichous*. Flat hair is always woolly or kinky, and approaches jet black in color. In the woolly hair of most Negroes, the hair is moderately long and curls into interlaced spirals which form a continuous mat. Kinky hair reaches its extreme form in the pepper-corn type of the Bushmen and Hottentots, among whom the hair is rather short and twists so hard that it forms tufts between which the scalp is exposed. Oval hair is wavy or curly, frequently of light shades, and is found among various dark-skinned peoples of the Mediterranean Basin and light-skinned peoples of northwestern Europe. Curly hair is intermediate between woolly and wavy forms. This tendency to curl begins in the root of the hair, as shown in the accompanying cut. (Figure 12.)

There is thus a continuous series of forms from kinky, through woolly, curly, and wavy, to straight. As we move along this series the turns in the direction of the hair become less and less frequent, the tendency to form spirals gives place to a simple wave which is in turn superseded by the perfectly straight, tube-like

form. Round hair is nearly always black, stiff, and coarse, and is most common among the yellowish- and brown-skinned peoples of the Orient. The *index of the hair* is the ratio of width to length of cross-section as measured under the microscope. Since individual hairs from the same person, and even single hairs at different points in their length, vary in index, it is necessary to find an average of a number of hairs in order to get a reliable index

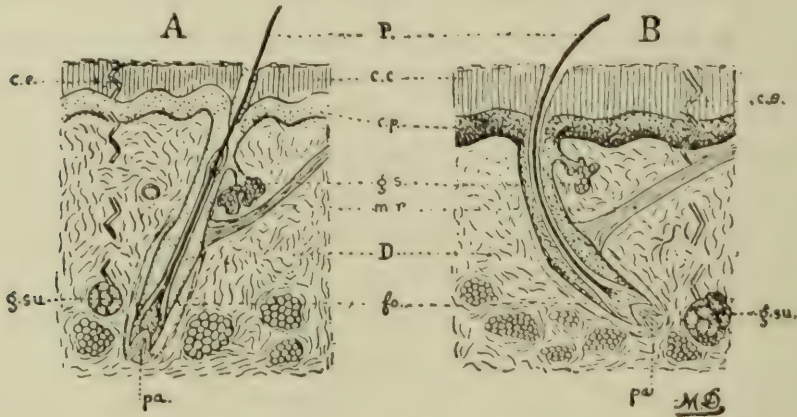


FIG. 12.—Drawing of the skin and hair root of a European, A, and a Negro, B. Note differences in width of horny layer, c. e., pigment layer, c. p., and in straightness of hair. From J. Deniker, *Les races et les peuples de la terre*, Masson et Cie., 1926.

for an individual or race. Indices range from about 100 to about 50. Wilder gives the following figures for certain groups: Japanese, 85; Europeans, 72.62; Negroes, 60.50; Hottentots and Bushmen, 50.40.⁸

Stature. The total range of variation in human stature is from certain African pygmies, who almost never reach a stature of five feet, through races that are still relatively short, to those that are tall or even very tall, seldom having stature less than five feet six inches. So variable is the stature within any racial group that a racial average must be computed from numerous individual measurements. Like other human characteristics, stature tends strongly to be inherited, so that pygmy statures continue from generation to generation among pygmy peoples and tall statures among tall peoples. The racial average, therefore, tends to be remarkably constant under a great variety of environmental conditions. On the other hand, it has been clearly

⁸ H. H. Wilder, *Pedigree of the Human Race*, Henry Holt and Co., 1926, p. 319.

shown by an extensive body of evidence that stature shows some variation with alterations in food, climate, and mode of life. This does not mean that stature is easily and readily altered to a vast extent, because regardless of the utmost changes in environment tall races will tend to be tall and short ones to be short. It does mean, however, that stature is more variable than most other human characteristics and is consequently one of the less reliable of the physical traits for racial discrimination.

This fact becomes of special importance in view of the small range of statures in the whole human stock. If we take sixty-six inches as representing medium human stature, we shall find that nearly all races of men have average statures within four or five inches of this medium. An alteration of one inch, or even one-half inch, in average stature, therefore, appears to the anthropologist as significant of either hereditary or environmental differences. The only races having an average stature under five feet are the dwarf blacks, including the pygmies of the Lake Nyanza region in central Africa, the *Ætas* of the Philippines and the Andaman Islanders in the Indian Ocean. Only slightly taller are the Bushmen of South Africa and the Lapps of northern Scandinavia. At the opposite extreme are the Sikhs of India, the English, Irish, native-white Americans, Sioux and Cheyenne Indians, Negroes of the Sudan, and the Scotch.⁹

Nose. One of the most interesting and useful bases of racial distinction is the shape of the nose. The most common measure here is called the nasal index, which is the ratio of the width of the nose measured from side to side at the base to the height measured from root to base. When this index, computed in the same manner as the cephalic index, is below 70 it is called leptorrhine; between 75 and 80, mesorrhine; and above, platyrrhine or chamærrhine. These indices apply to measures on the living. Where this ratio is computed from the skull the indices for the different types are lower. Nasal indices computed from measures on living persons range from averages below 70 for Hindu Brahmins, Sikhs, and Europeans to above 100 for various Negroes and Australians. It is possible to show that the broad nostril is associated with hot-moist climate, the narrow with cold-dry climate, and the intermediate type with hot-dry or cold-moist climates. At one extreme are nasal passages permitting a

⁹ *Ibid.*, pp. 325-327.

large and rapid intake of air, a type of breathing necessary in a warm, heavy atmosphere; at the other extreme, are passages which warm the air before it enters the lungs.¹⁰ (Figure 13.)

There are other features of the nose, such as the shape of the bridge, the width of the wings or alæ, the profile, the manner of

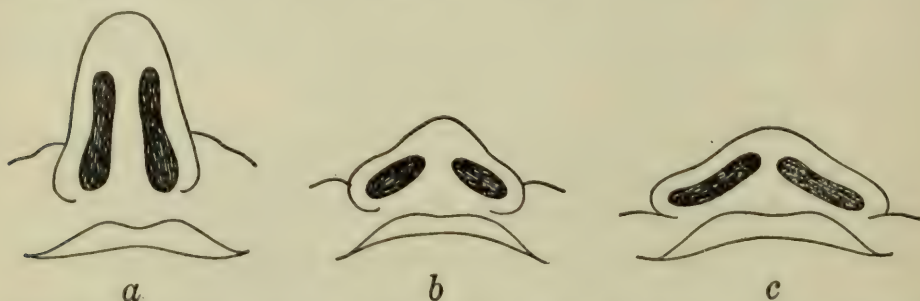


FIG. 13.—Outlines of forms of the nose, as seen from below, and corresponding shapes of nostrils. a, extreme leptorrhine; b, extreme mesorrhine; c, extreme platyrrhine. (After Topinard.)

junction of wings and face, and such special development of the fleshy parts as is commonly designated the “Jewish” nose, more accurately called the Hittite nose.

Other Traits. The foregoing by no means exhaust the list of traits studied by the physical anthropologist. He adds numerous observations of mouth and lips, general body build, various bodily proportions (as total reach, length of trunk, of entire arm, of upper and lower arm, of leg and foot, and their ratios to each other), steatopygia, the Mongolian eye, variations in muscular or glandular development and in physiology. Upon skeletal remains there are numerous refined measurements of size, shape, and joints, as a result of which it is possible to determine with considerable confidence the size and build of the entire body from a small number of bones. (Figure 14.)

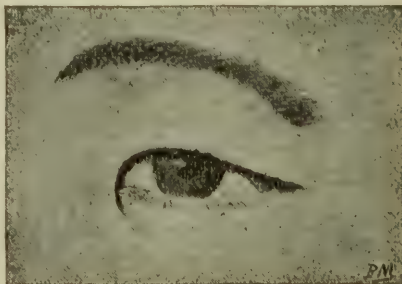


FIG. 14.—The Mongolian eye, showing the distinctive skin fold at the nasal end. (From Deniker, *op. cit.*)

¹⁰ A. Thomson and L. H. Dudley Buxton, “Man’s Nasal Index in Relation to Certain Climatic Conditions,” *Jour. Roy. Anthropol. Inst.*, Vol. 53, 1923, pp. 92–122.

CLASSIFICATION OF RACES

Difficulties. In efforts to classify the races it is customary to divide them first into major groups on the basis of an important trait such as head form or hair form, and then subdivide these major groups into smaller ones by the use of other traits. Thus both Professor Haddon and Professor Deniker begin with the threefold classification of hair form into woolly, wavy or curly, and straight. The former then divides each of these categories according to shape of skull and then again each of these second classes according to stature or skin color. Deniker uses width of nose and color of eyes as bases for subdivision. No finality attaches to such classifications, because one might make either head form or complexion the fundamental trait and differentiate sub-classes within each. There are thus literally dozens of different classifications of the races. Some authorities find a few fundamental races with many sub-races, whereas others find more than a dozen primary races with more or less numerous sub-varieties.

Another condition making difficult a satisfactory classification of the races is, as already indicated, the great amount of hybridity or mixture of types that has occurred in all readily accessible areas. While it is fairly easy to divide most of mankind into such large and loosely discriminated groups as white, yellow, and black, it is not so easy to classify the numerous intermediate and borderline types. The racial center of the blacks is Africa, of the yellows, eastern and east-central Asia, and of the whites, Europe. But there are blacks in Asia, as also whites; and there are yellows and borderline blacks in Europe. Northern Africa has been a melting-pot of the races as has western Asia and southeastern Europe.

A third difficulty is the existence of a number of types not easily included in any one of the three great racial groups. Here are clearly included such very primitive types as the Australians, the Veddahs, the pygmy Negritos, the Ainu of Japan, and others.

A fourth difficulty is our lack of exact information of the actual course of human evolution. We have already seen that we do not even know whether man evolved from the ape in one locality and spread thence to the ends of the world, or whether he evolved in a number of places at much the same time from closely related varieties of the same ape-like creature. In any case, two general facts have contributed to the present intricacy of types. Rela-

tively isolated groups in widely separated centers of differentiation, as Asia and Africa, would evolve for thousands of years along their own special lines. In the intermediate territory migratory groups of different types would cross and recross in various ways and with different degrees of subsequent isolation, during which new combinations of ancestral traits would become stabilized as new races. If we knew the order in which such events had occurred it would be quite easy to make a chart showing the major divisions and inter-relationships of all existing races. But to try to unravel these relationships now by a study of physical traits is nearly impossible. The progress of knowledge of how different human traits, as head form, nose, lips, eye color, etc., are inherited may, however, simplify this problem. On account of the long time involved, it does not seem probable that we shall ever achieve more than a general notion of the actual course of man's physical evolution.

There is still another observation that should be made at this point, namely, that the evolution of the more sharply defined groups of man was probably not in a straight line. As the above remarks imply, the human genealogical tree has a number of main branches each separated long ago from the others, with a variety of smaller branches, each subject to more or less special variation, culminating finally in more or less numerous twigs. The various types of man cannot, therefore, be arranged in a serial order beginning with those closest to the anthropoids and ending with those farthest removed therefrom. Negro, Mongoloid, and Caucasian, each is more like and more unlike the apes in some respects than the others. No doubt there were intermediate types; possibly some are still living. But where they belong on the multi-branched tree it is now impossible to say.

Early Attempts. Many efforts have been made to classify the races of men. Early attempts were made by Bernier in 1684, Linnæus in 1735, and Blumenbach in 1775. The last divided man into five groups: Caucasian, Mongolian, Ethiopian, American, and Malayan, a classification still in use under the same terms, or under the simple color designations, white, yellow, black, red, and brown. Cuvier's famous classification in 1817 was based on the three sons of Noah—Shem, Ham, and Japheth—from whom were derived the Semitic, the Hamitic, and the Japhetic peoples. While this classification was widely used in religious circles for

two generations it had no basis in fact. As knowledge of the extraordinary variety of the human species increased there was a tendency to increase the number of races and sub-races.¹¹ Thus the German zoölogist, Professor Ernest Haeckel, found 12 races in 1873 and 34 in 1879; the French anthropologist, Professor Paul Topinard, found 16 in 1878 and 19 in 1885; and his colleague, Joseph Deniker, found 13 races with 30 subdivisions in 1889 but 17 races with 29 subdivisions in 1900. We may also note that the English ethnologist, A. H. Keane,¹² classified mankind into many varieties under three or four "ideal" or "generalized" types.

Some Recent Classifications. These efforts indicate the extraordinary difficulty of making a satisfactory classification. None



FIG. 15.—Front and profile views of an Australian native. Note character of hair, brow ridge, forehead, nose, and mouth. (After Spencer and Gillen.)

universally acceptable has yet been devised. One of the best of the simple classifications was that made by T. H. Huxley into Australoid, Negroid, Mongoloid, Melanochroid (dark whites), and Xanthochroid (fair whites), with fourteen secondary types. This classification has the advantage of setting the primitive Australian and related types apart as distinct from the Negro; and if we group the whites together so as to make four groups we have a very simple but suggestive classification of primary types into Australoid, Negroid, Mongoloid, and Caucasian. (Figure 15.)

¹¹ A. C. Haddon and A. H. Quiggin, *History of Anthropology*, G. P. Putnam's Sons, 1910, pp. 88 *et seq.*

¹² A. H. Keane, *Ethnology*, Cambridge Univ. Press, 1895, Chap. x.

In its basic feature this classification is remarkably similar to a new one recently suggested by Professor H. H. Wilder.¹³ In this, the Australians are looked upon as the nearest of living races to the original undifferentiated type of man, a view now widely accepted. They have the heavy brow-ridges and low slanting forehead of Neanderthal man; they are "profusely hairy with neither the wool of the Ethiopians, nor the straight hair of the Mongolians, with broad noses, though not particularly flat ones." There are suggestions among them of the thick lips of the Ethiopian and the hairy bodies of the Caucasian. It is not impossible to see how all the more highly specialized races might have been derived from them, though there is no convincing evidence that this is the case. Closely similar to them are the Veddahs of Ceylon, the Papuans of New Guinea, and the Dravidians of India. These groups together thus constitute the "Protomorphs," or primary, least specialized, forms of man as he exists to-day.

At the opposite extreme, representing the most highly differentiated types, are three large groups: the Caucasians, the Mongolians, and the Ethiopians. Between these and the primary forms are arrayed certain intermediate forms, the Proto-Caucasians, the Proto-Mongolians, the Proto-Ethiopians, and the American Indians. One sees in this classification more clearly than in most the arrangement of the races as the parts of a tree with four main branches and numerous sub-branches all springing from a common stem. It differs, however, in one very important respect from the classifications usually adopted in this country, in that the American Indian is given a separate branch, instead of being placed as an offshoot from the Mongoloid stock. There now seems little doubt that these Indians and the Eskimos, to whom they are related, are varieties of the east Asiatic Mongoloid type.

As a simple graphic representation of the three main divisions of mankind and a few of their major subdivisions, together with a few odd groups not easily classified, we reproduce the accompanying chart from Kroeber. The distances between centers of circles indicate degrees of similarity. (Figure 16.)

The European Races. As we have seen from the study of prehistoric types, in an earlier chapter, Europe was inhabited many thousands of years ago by several varieties of men now extinct. There can be no doubt that immediate ancestors of some of

¹³ *Op. cit.*, Chap. vi, pp. 335-361.

the existing European races lived on that continent in paleolithic times, or more than 20,000 years ago. The early racial history of the continent is as yet by no means clear, but we do know that, during the last few thousand years, there has been a great variety of migratory movements attended by war, conquest, and racial amalgamation. There is to-day, in consequence, a considerable degree of racial heterogeneity in all parts. Nevertheless, differ-

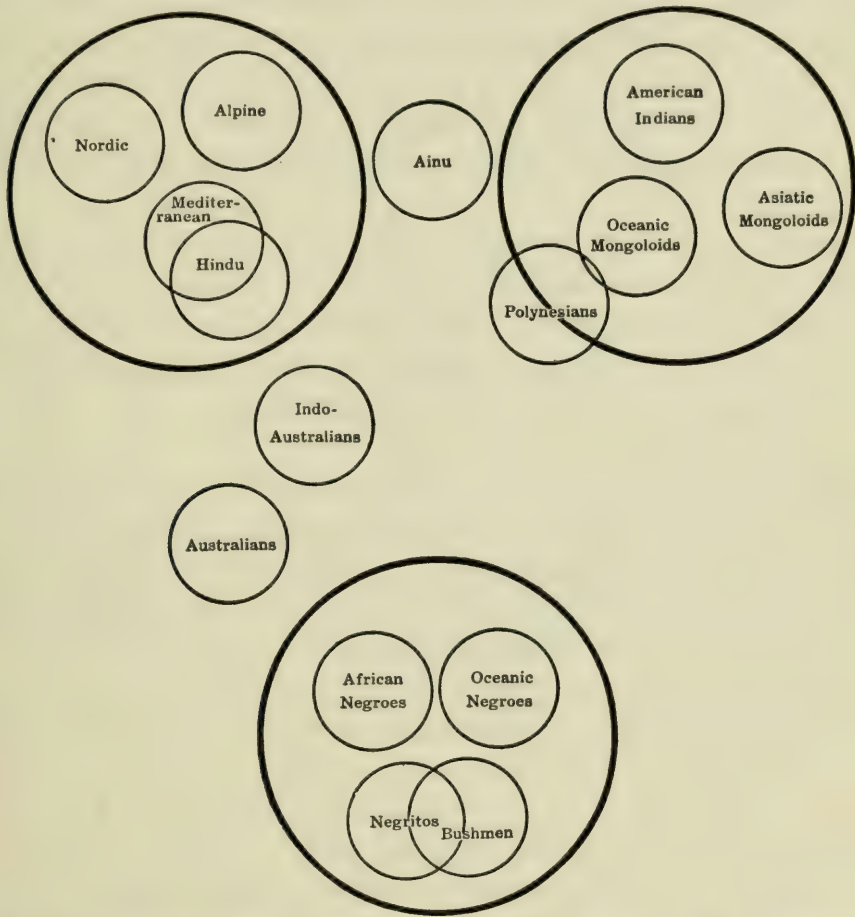


FIG. 16.—Relationship of the human races. From A. L. Kroeber, *Anthropology*, Harcourt, Brace and Company, 1923, by permission.

ences between areas are sufficiently marked to make possible the delineation of at least three primary racial types. The description of these types as found in Professor W. Z. Ripley's *Races of Europe* is still accepted, though requiring some supplement and correction as to geographical distribution. Moreover, some anthropologists find several additional primary types. Ripley's races are the Mediterranean, Teutonic, and Alpine.

Probably the oldest in Europe is the Mediterranean, or *Homo sapiens mediterraneus*. This is characterized by medium stature (averaging sixty-three to sixty-four inches); slender body build; long head (average cephalic index being seventy-two to seventy-six); long, frequently oval face; fairly broad nose; dark brown to black hair and eyes. It is found in greatest purity in southern Italy, Sicily, Sardinia, and Corsica, but is numerous in southern France, Spain, Portugal, along the Mediterranean littoral in northern Africa, in Wales and parts of Scotland and Ireland. It is believed to have originated in northeastern Africa or western Asia and to have reached Europe from Africa across the islands of the Mediterranean. It is, consequently, also called the Eur-African race.

A second type is the Teutonic, also called the Baltic or Nordic (Northern), or *Homo sapiens europæus*. It has very tall stature (averaging sixty-eight to sixty-nine inches); strong and rugged body; long head (average cephalic index, seventy-six to seventy-nine); long face; narrow nose; clear, fair, or ruddy skin; blond to light-brown hair; and blue, gray, or green eyes. It is found in greatest purity in Sweden, Denmark, parts of Germany, Belgium, Holland, northern France, and the British Isles. Its racial derivation is unknown. It is believed by many to have been derived by mutation from the Mediterranean race, while others give it an independent but obscure origin. Its place of origin is also unknown. Some scholars think it originated around the Baltic Sea, while others place its cradle-land farther east in the plains of Hungary, on the Russian steppes, or even in west or northwest Asia. It has lived around the Baltic Sea during a great part of Post-Glacial time. Various tribes, composed largely of Nordics, have at various times within the historic period pushed vigorously southward and southeastward from the Baltic.

A third distinct type is the Alpine, or *Homo sapiens alpinus*. This is notable for its broad head (cephalic index, eighty-five and over), and its strong, stocky body-build. Otherwise it is intermediate between the other two European races, having medium to tall stature (averaging more than sixty-four inches); round to long oval face; variable but rather broad, heavy nose; abundant, light to dark-brown hair; and light-brown, hazel-gray to dark-brown eyes. Its complexion traits are quite variable because,

as now found, it everywhere bears evidence of intermixture with Nordics or Mediterraneans. It is undoubtedly of Asiatic origin as shown by its round head, and for this reason is also called the Eur-Asian race. It was the last of these three races to appear in western Europe, having reached eastern France about 2500 B. C. and England and Scandinavia seven centuries later. It is now the primary ingredient in all the peoples stretching eastward from the Alps in a fan-shaped area into Asia, and is found in considerable purity in parts of France (Savoy, the Cevennes Mountains, the Massive Central, and Brittany) and in south Germany. In western Europe it has occupied the uplands, while Nordic and Mediterranean have possessed the valleys and seashores.

The Eur-Asian race is frequently differentiated into at least two varieties. Thus the Alpine race proper of the Alps region has only a medium stature, averaging about sixty-four inches, whereas the Dinaric or Adriatic race, having similar head form, is characterized by a stature average of sixty-six inches. It is the race of the Albanians, Montenegrins, Bosnians, and Herzegovinians.

One should not assume that the above classification is complete or final. The anthropology of many parts of Europe is as yet little known, and further investigation will doubtless warrant further subdivision and refinement. The above may, therefore, be viewed only as a simple introductory statement of present opinions.

We discuss below the psychic traits of the three European types.

RACE HYBRIDISM

Extent and Causes. In the previous chapter we noted that different racial types had been commingling since immemorial time. The result is that pure races scarcely exist. They are approached only in isolated islands and secluded mountain fastnesses. The causes of this mixture are numerous but obvious. Conquest has altered racial composition countless times and in all parts of the world. Not infrequently the conquered males were slain and the women taken as wives or concubines. Migration, such as we have experienced in our own country, makes of every fertile and prosperous land a melting-pot of racial types. Mass movements, such as those of the Germanic tribes through

Europe, and the passage of armies, leave behind a trail of alien blood. Wife-lending, wife-stealing, and wife-purchase have often diversified a racial stock. Travelers, traders, and sailors have mingled their traits with indigenous populations. Race crossing was probably never more extensive in human history than it is to-day.

Significance. An immense importance is attached in various sociological theories to the crossing of races. It is claimed by one school that all mixture of races is necessarily and fundamentally deleterious. One may set over against this theory the contrary doctrine that the crossing of races is biologically advantageous. The political importance of such doctrine is revealed in the recent American antagonism to the mixing of the Old American stock with various immigrant or alien elements on the ground that the Old American stock was distinctly superior to the immigrants and that such mixture would result in racial deterioration in this country. Such doctrines were influential in bringing about immigration restriction and in giving a deeply emotional quality to the Ku Klux Klan and Hundred Per Cent Americanism movements. It is highly important, therefore, first, to investigate the evidences of the hybridity of the English and the Old American populations, and secondly, to inquire whether race crossing is actually deleterious or beneficial.

In so doing we should be careful to keep our attention centered on the issue, whether or not, from the strictly biological point of view, race crossing is deleterious. The fact that hybrid types are commonly forced by social convention into the social status of the lower race should not be permitted to becloud the matter. Social caste systems may and doubtless do thus prevent hybrids from expressing their full inherent capacities by limiting their activities and opportunities for self-development and self-expression to the lower ranges of social activity. There, consequently, are a number of separable questions involved in the problem of race mixture, such as: What is its extent? What are the biological principles involved? Are the biological principles the same when the races are closely related as when they are far apart in physical traits? Even if race crossing should be biologically justifiable, is it advisable as a practical public policy in the face of strong social antagonism or intense feelings of racial superiority and inferiority?

General European Hybridism. We have seen that the European populations are a mixture of three and possibly more primary races. Though these races are very unevenly distributed, there are few, if any, areas where there has been no crossing of more or less different types. The researches of the paleoanthro-

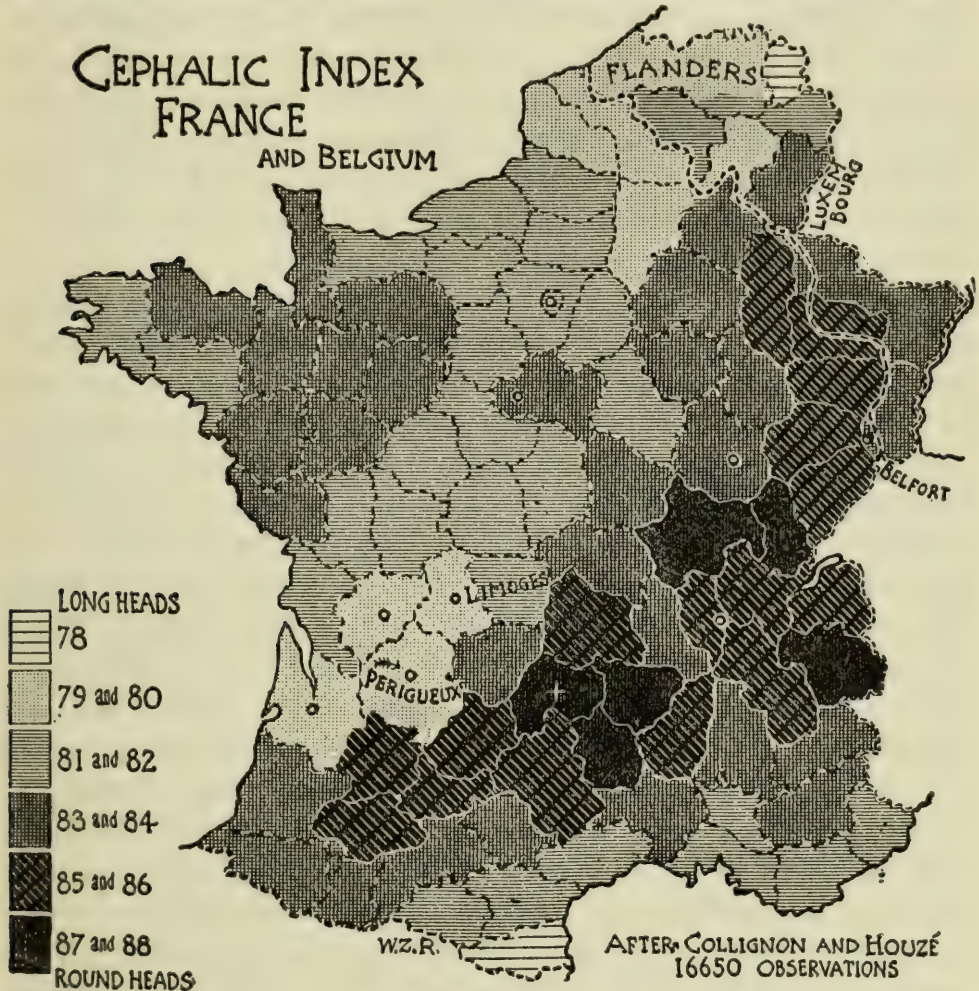


FIG. 17.—Map to illustrate the mixture of racial types in western Europe. The lighter colored areas in the north and southwest show Nordic penetration; the dark areas show penetration of Alpines; in the south the long-headed Mediterraneans are numerous. From W. Z. Ripley, *The Races of Europe*, D. Appleton and Co., 1899, by permission.

pologists have made it clear that the tribal groups, such as the Achæan heroes, the so-called Celts, the Teutons of all names, and other like groups, showed signs of racial hybridity. Professor Harold Peake finds that the peoples of the Russian steppes of five to eight thousand years ago showed a range in cephalic index from sixty-five to seventy-nine. Similarly Professor Dixon's

data¹⁴ reveal that even the paleolithic skulls of nearly every part of western Europe show a considerable variation, a variation which increased considerably during Neolithic times and still more during the bronze age. A suggestion of the present mingling of types in western Europe is furnished by the accompanying map (Figure 17) showing the distribution of cephalic indices in France and Belgium. The Teutonic invaders swept across the country from north to south; the Alpines predominate in the higher altitudes and in Brittany; along the southern littoral the Mediterraneans, though mixed with round-headed Alpines, lower the cephalic index. Let us take a brief look at some of the evidences of race mixture in the British Isles.

Great Britain. Among the oldest direct ancestors of existing inhabitants of the British Isles were the short dolichocephalic and dark complexioned Britons generally believed to be a branch of the Mediterranean race. It is possible, but by no means certain, that descendants of the Galley Hill man of at least 200,000 years ago or even of Neanderthal man may be found in the British Isles to-day.¹⁵ This was Professor Arthur Keith's view, but it was not very generally accepted. Professor D. A. Mackenzie¹⁶ thinks the earliest surviving type was the Crô-Magnon which came from France in Magdalenian times, about 15,000 years ago. Later the Maglemosian culture was introduced by people from the Baltic area who were presumably fair, and then the Azilian-Tardenoisian culture by a short dark Iberian or Mediterranean people often referred to as the long-barrow people, because they buried their dead in a long grave under a similar mound. This latter type also introduced the Neolithic culture and were followed after some centuries by Alpine round heads bearing a bronze culture. These were the round-barrow people, making their graves with a round mound. Later, during many centuries, two types of Celtic-speaking peoples, one fair, the other dark, respectively known as the Goidelic and the Brythonic Celts, reached the Isles from various parts of the continent. Then came the Roman conquest, followed in the fifth century A. D. by the

¹⁴ Harold Peake, *The Bronze Age and the Celtic World*, London, Benn Bros., 1924, pp. 154-156; Roland B. Dixon, *The Racial History of Man*, Chas. Scribner's Sons, 1923, Book I.

¹⁵ Arthur Keith, *Types of Ancient Man*, Harper and Bros., 1911, and *Antiquity of Man*, J. B. Lippincott Co., 1925.

¹⁶ D. A. Mackenzie, *Ancient Man in Britain*, Blackie and Son, 1923, pp. 125 *et seq.* and pp. 218 *et seq.*

extensive movement of Nordic types, Angles, Saxons, Jutes, and Scandinavians. These latter included some intermixture of broad-headed elements of Alpine derivation. Thus the various European races were all present in the English population a thousand years ago, just as they were in the populations of all other western European countries, although in varying proportions.

During these centuries these types have crossed in all sorts of ways, with the result that ancient types persist alongside every kind of hybrid intermediates. There is still a degree of correspondence between tallness and blondness and shortness and brunetness, though it is by no means universal, for, while there are short brunet Scotch, Welsh, and Irish, the Scotch of Argyle are distinguished by tallness and brunetness. So also are the Irish of Connaught. Professor F. G. Parsons¹⁷ finds that the combination of dark hair and dark eyes seldom falls below 25 per cent of the population in any part of the Isles, while the percentage of persons with fair hair is seldom as much as twenty. The combination of light eyes and brown hair is frequent but there are considerable percentages showing fair hair and dark eyes, or dark brown to black hair and light eyes. Even "in the darkest regions pure brunet types are more frequent than the blond by about 5 per cent. Everywhere, however, all possible crossings of characteristics appear, proving that the population is well on the road to homogeneity." In view of these facts it is obviously erroneous to think of England as inhabited by tall, blond, dolichocephalic Anglo-Saxons or Nordics. Nor is there such a thing as the "English" race. If there were no migration to the Isles for another thousand years, and if the various elements moved about more or less freely and intermarried without discrimination, we should doubtless see the emergence of an English race. But even then it would still be a hybrid product of the primary European types.

American Population. Since the American population is largely derived from the British Isles, we would expect even the older native groups to show evidences of race mixture. This has recently been shown by Professor Aleš Hrdlička¹⁸ who studied

¹⁷ "The Color Index of the British Isles," *Jour. Roy. Anth. Inst.* Vol. 50, 1920, pp. 150-183.

¹⁸ *Old Americans*, Williams and Wilkins Co., 1926.

the anthropological traits of about 2,000 persons (1,009 males and 914 females) whose ancestry for three generations had been purely American. As to hair color, he found that "Dark" shades are more frequent than blonds and light browns combined. There is a wider variation among the females than among the males, that is, there is a somewhat larger proportion of the extreme shades, blond, dark, black, and red. Males are somewhat more intermediate. This may indicate a greater persistence of ancestral traits among females. As Hrdlička says: "The Old Americans are, so far as hair color is concerned, only exceptionally blond, but commonly medium to brunet." They "are very distinct and far apart from the Nordics."¹⁹

As to eye color alone: nearly one-third (31 per cent) of the males and one-fourth (24.1 per cent) of the females were found to have pure light eyes; one sixth (16.5 per cent) of the males and one-fifth (20 per cent) of the females had pure (light, medium, or dark) brown eyes; while more than one-half of each sex had eyes of "mixed" color; that is, eyes in which the brown pigment is imperfectly distributed or unevenly blended. Here is clear evidence of extensive hybridization.

The author combined hair color and eye color to discover the proportions of blonds and brunets as these terms are ordinarily employed. The percentage table, in which "Fair" includes the "Pure Blonds" and "Ordinary Blonds" as well as other light complexions, while "Apparent Brunets" includes "Pure Brunets" and other dark combinations, follows.

OLD AMERICANS: BLONDS AND BRUNETS

SEX	PURE BLONDS	ORDINARY BLONDS	FAIR	PURE BRUNETS	APPARENT BRUNETS	INTER- MEDIATES
Males	3	5	21	6.5	26	53
Females	3.5	6.5	24	11.0	31	45

In so far as these figures are typical, they show that about half of the Old Americans are intermediates and considerably more than a quarter are brunets. Pure blonds are exceptional; even "ordinary" blonds are only 1 in 16 to 20, while about 1 in 6 among the males and 1 in 9 among the females is a "pure" brunet. There is thus no ground whatever either for the claim that the Old American stock was peculiarly blond or that it was a pure race.

¹⁹ *Ibid.*, p. 54.

Even as regards the cephalic index Hrdlička found that brachycephalic heads (index eighty and over) were distinctly more numerous than dolichocephalic (index under seventy-five). While 16.6 per cent of the males had long heads, 21.7 per cent had round heads; and while 8.1 per cent of the females had long heads, 41.9 per cent had round heads. The remainder were mesocephalic (index seventy-five to eighty).²⁰ In view of this wide diversity of head form, comparable to that of the British Isles, as was also the diversity of pigmentation, there is no way to include the American population within the confines of a relatively pure Nordic race.

Arguments against Race Mixture. The question naturally arises as to what are the effects of such racial hybridism on the qualities of a population. The view has been actively cultivated by various groups of race purists that any mixture of races, even of closely related types, is deleterious.

Assuming races to be graded in a fairly clean-cut hierarchy, they argue in a general, loose way that such mixture adulterates the qualities of the superior race, and by producing a general panmixia of elements destroys the natural leaders, organizers, and creators, who could come only from the superior race. They argue that mixture thus destroys the natural racial aristocracy with its instincts and capacities of rulership, giving rise to a mongrel population with the low tastes and democratic instincts of the common human herd. They have had some support from biologists and anthropologists who argue that the crossing of widely unrelated types gives rise to disharmonies of bodily parts and to mental and emotional instability. There would result long heads with round faces and other intermixtures of traits that are not found in association in pure races. This is the explanation sometimes given for the appearance of such malproportions as big teeth in little jaws, big men with small hearts, large heads on small bodies, or long bodies on short legs. Anthropological opinion has tended to support this view, partly because of the frequent observation of an unusual amount of social dereliction and general inefficiency in certain areas or classes where there was also much crossing of racial types.

Primary Biological Principle. This subject is still rather obscure, but there is no doubt the arguments against race crossing

²⁰ *Ibid.*, p. 160.

were either gross exaggerations or wholly unfounded. The primary principle here is that there comes out of any crossing of races only those hereditary traits which go into it. Low grade or defective parents of different races will produce low grade or defective offspring; but this will also be the case if such parents are of the same race. Similarly, high-grade offspring are born to high-grade parents, as a rule, whether the parents are of the same or of different races. This principle is merely a deduction from the general fact established by extensive biological experimentation that neither inbreeding nor outbreeding is in itself deleterious. That is, perfectly pure and sound stocks can be inbred through a number of generations without apparent detriment. But "perfectly pure and sound stocks" are rare in any species, with the result that inbreeding will give an increased chance for latent or recessive defects to appear. Since, however, such defects may appear in outbreeding, they cannot be attributed to the fact of inbreeding or outbreeding as such, but must be attributed to the presence of the particular genetic factors for them in the parental germ plasms.

This view of the biology of race mixture shows the fallacy of the argument advanced by many anthropologists that crossing produces mental deficiency and nervous instability. It also explains why such crosses as the Spanish-Mexican and the various cross-bred populations of Central and South America have not resulted in gifted peoples. Thus, when the Swedish anthropologist, J. A. Mjølén, found that there was much alcoholism, low mentality, criminality, and other marks of deficiency among certain strata of the population of Stockholm, among whom race crossing was quite common, he erroneously attributed these deficiencies to the crossing of races. This explanation entirely neglected the fact that the strains that were crossed were already of low quality, carrying various hereditary defects, so that their mating inevitably produced defective offspring. But such deficiency would have occurred, and does occur, among the offspring of parents of the same race. The fundamental principle, therefore, is that, from a purely biological point of view, race crossing can produce no traits not inherent in the ancestral strains. This is the same principle that applies to the crossing of different strains in the same population or race. We may set over against the cases of low-grade hybrids, such as the Spanish-Mexicans, certain well-endowed and well-balanced hybrids, such as the Boer-Hottentot

crosses of South Africa, the American mulatto, the Chinese-Hawaiian mixture, and the various populations of western Europe. In this connection we may point out that many hybrids of the world to-day are half-castes due to the crossing of the lower elements of the dominant whites with the women of subject colored races. Such combinations should not be expected to produce able stocks.

Blending Traits. In the crossing of widely different races some traits are passed on from generation to generation with little change, whereas other traits seem to blend. It follows that the hybrids resulting from race mixture will reveal some traits of one or the other ancestral race while still other traits appear in an intermediate condition. Consequently, among the offspring of such crosses as the White and Negro will appear a wide range of individuals, some of whom approach the Negro and some of whom approach the White. It is important here to note that as a rule such traits as skin color, hair form, stature, head form, and intelligence, which are complex or have back of them multiple genetic factors, usually blend or take on an intermediate condition in the offspring. Thus as a rule mulattoes are intermediate between whites and blacks in complexion and intelligence.

Disharmonious Combinations. As to physical disharmonies, there seems no special reason for attributing them to race crossing. It is true that the genetic factors for different parts of the body are separate and to a large extent independently inherited, so that the dominant factors for some parts come from one parent and for other parts from the other parent. And yet in the embryological stages and prenatal growth the development of all parts is more or less harmonized through the unifying action of hormones which stimulate the growth of all parts together. Moreover, there is much ground for supposing that factors for teeth and jaw, for example, would be linked in inheritance. Finally, while round faces and long heads, as in the Crô-Magnon, or blue eyes and black hair, as sometimes appear in Nordic-Mediterranean crosses, are frequently looked upon as disharmonious, because they are combinations which are unusual. The unusual may, however, be in no way detrimental to the survival power of their possessors. If they prevent marriage they will of course tend to be eliminated but that becomes a matter of sexual selection, or taste in choosing mates, rather than of inherent quality. Never-

theless, it must be admitted that this question of disharmony of parts is by no means settled. It is a question to be settled in last analysis by the physiologist. Until, however, it is shown that hybrids possess certain maladjustments in their glandular systems or their nervous systems which affect their energy, or vitality, or make them nervously unstable, we may say that the weight of evidence is strongly against the popular notion that race crossing is in itself, and from the biological viewpoint, deleterious.

A further word should be said in this connection regarding the mental deterioration, the widely heralded nervous instability, assumed to result from race crossing. As noted above; the social deficiency sometimes associated with hybrids is often readily explained by the low grade of ancestry. There is another very important consideration. In many places where Europeans have crossed with native populations, especially in Asia, the half-breeds are socially ostracized by both white and colored races. In such cases a large part of their inferiority in social achievement may be explained by their lack of opportunity.

Arguments for Race Mixture. In addition there are several things to be said in favor of race mixture. In the first place, there is the phenomenon of heterosis, or hybrid vigor. It is frequently observed that the hybrids of the first generation are taller and stronger than either parent race. There is some indication also that they are somewhat more fertile. It is not known whether this vigor affects also the mental powers, but, if it does, it might be one among several factors to account for the increase in the number of super-men in an area of race crossing. Certain it is, in any case, that areas of high culture have been areas of race mixture, and notable for their manifestations of genius. Little is as yet known, however, regarding heterosis in human crosses. Moreover, whatever benefits it does confer are quickly lost in subsequent generations. It is a valuable acquisition for the first generation hybrids when it occurs, but the descendants of the hybrids, as a racial group, occupy a position intermediate between the two parent races, as regards most traits. Heterosis is not known to occur in White-Negro crosses, but the colored people of this country illustrate the intermediate qualities of a mixed population.

In the second place, crossing widens the range of variability. It adds to all the genetic combinations of the two races taken

separately the diverse combinations of their crosses. This gives natural selection more elements to work on, and thus increases the plasticity of human traits under environmental selection. In an ever changing world those forms of plant and animal life that become highly specialized tend to be eliminated. They lose their adjustment to environment, and, of course, have no power within themselves to adapt their hereditary qualities to new conditions. In so far, therefore, as hybridism widens variability, breaks up old combinations of traits, and forges new ones, it becomes a factor in racial evolution and adaptation.

It is equally important to note in this same connection that among hybrids will appear some individuals combining the inferiorities of both parental stocks and others combining the superiorities. If the former appear on the debit side of the account, the latter are on the credit side. These latter, moreover, may be of considerable significance in the relation of a population to cultural achievement. In so far as race A may excel race B in vigor and enterprise, though being excelled in power of thought and creative imagination, it is clear that the crossing of these two races will give rise to occasional individuals who combine very high degrees of all these qualities. It seems highly probably that most men of genius were men of mixed race. Even the great apostles of race purity, such as Chamberlain, Woltmann, and Lapouge, were compelled to admit that a large proportion of the men of genius of the Renaissance in Italy and France were of mixed race. Havelock Ellis ²¹ found that the areas of greatest racial mixture in England were the birthplaces of an unusual number of superior men. It is an historical fact, also, that the rise of culture in Greece and Rome, as indeed in western Europe, was in every case preceded some centuries by the conquest of one racial type by another and their subsequent amalgamation.

The establishment of causal connection between such events is, of course, not easy. The same is true of the connection between the amalgamation of races and the ultimate decline of culture. It is claimed by some authors that race crossing accounts for the presence in the civilized areas, as in Rome during its last centuries, of great masses of inert humanity who constitute an intolerable burden and ultimately destroy civilization by their own spiritless

²¹ Havelock Ellis, *A Study of British Genius*, rev. ed., Houghton, Mifflin Co., 1926, Chap. ii.

weight. The theory advanced by such writers is that the crossing of strains "mongrelizes" the population. By this they mean that the superb combination of traits, the vigor, intelligence, and organizing genius, which enabled the conquering race to build a great civilization, is broken up and lost by submergence in the mass. This view has little to support it except assumptions. Its primary assumption is that the conquering race is pure; its second assumption is that it is innately superior. Even if we grant some truth to these assumptions, it seems more probable that the decline of a civilization is accompanied by a dying out of its better strains through celibacy, late marriages, and small families.

Regardless of the truth of such speculations, the diversity of talent which the crossing of racial types helps to produce is an essential condition for the development of a complex culture. A race of very pure breed would not be able to supply all the varied talents necessary to the creation of a high culture, because it must inevitably suffer the deficiencies implied in its superiorities, just as an individual cannot be well built for both foot-ball and foot-racing, any more than the same horse can be built for heavy draft purposes and speed. Thus the Nordic race appears to be well-endowed with organizing capacity, enterprise, practical intelligence, sober seriousness, and moral earnestness and stability. It appears to be less rich than the Mediterranean in finesse of intelligence, creative imagination, and musical and artistic feeling. It has frequently produced great statesmen, business geniuses, and imperious divines; but it has seldom produced great poets, musicians, or artists. Its fusion with other European stocks tends greatly to diversify the talents available, as the above-mentioned study by Havelock Ellis showed.²²

We seem likely to witness similar effects from the amalgamation of certain recent immigrant elements with the Old American stock. This latter, with its considerable Nordic element, seems to have been richly supplied with the practical intelligence, organizing capacity, physical energy, and mechanical genius necessary for the conquest and exploitation of the New World. No doubt, the situation called out these qualities, but the population could not have manifested them in such abundance had they not been among their inherent potentialities. Under present con-

²² F. H. Hankins, *The Racial Basis of Civilization*, A. A. Knopf and Co., 1926, Pt. II, Chap. viii.

ditions the older stock is giving more attention than formerly to art, literature, and science, but much of the rapidly increasing activities in these fields in America during the last score of years must be attributed to individuals of recently immigrant Italian, Hungarian, and Jewish blood. No doubt other large and essential factors are the great wealth of the country and its large metropolitan populations. It would seem that the practical intelligence and energy of the Old American stock, living in one of the most favored environments any nation ever occupied, in an age of remarkable scientific and technical advancement, has created a great material civilization which has attracted all sorts of varied talents, good and bad, to our shores, including persons of artistic, especially musical, ability, literary taste, and interest in problems of scientific research.

THEORIES OF RACIAL INEQUALITY

Primitive versus Advanced Races. The question whether the various races of men are equal has given rise to much acrimonious controversy, and the matter is still far from unanimously settled. Perhaps one of the easiest ways to approach the problem is through the question whether primitive races are less highly evolved physically and mentally than advanced races. In answering this we must beware lest the words "primitive" and "advanced" unconsciously betray us into a question-begging answer. By "primitive" is here meant a race *now* living in a state of low culture. It must not be forgotten that, only a few centuries ago, which is a short time in the history of culture, our own ancestors were living in a state of cultural advancement not noticeably superior to that of the North American Indians of a generation or two ago, or the Negro tribes of Africa to-day. It seems nearly certain that their bodies and minds were, so far as heredity is concerned, as good as our own. It follows that a race is not necessarily inferior because it lives in a low state of culture.

On the other hand, this should not be interpreted as implying that there are no differences between races so far as biological evolution is concerned. While little change has occurred in the hereditary qualities of the same racial stock during the last few thousand years, it is quite certain that different races have evolved during perhaps hundreds of thousands of years along somewhat

different lines of mutation and selection. From this we may reasonably conclude that some of them are more primitive than others with respect to certain traits, in the sense that they are closer to the proto-human in those traits. We have already noted that the Australian is commonly looked upon as the closest living approach to the proto-human; he shows his primitiveness in both physique and mental powers. The real question is, therefore, whether or not races now living in a state of low culture are less highly evolved in physical strength and endurance, in mental ability, and in temperamental qualities, than the Europeans.

Spencer's Answer. The classical answer to such a question was that formulated by Herbert Spencer in his *Principles of Sociology*. There were two primary assumptions in his point of view. First, that human evolution from ape to man had been in a straight line so that the races represent different stages of evolution from their common anthropoid ancestor. Secondly, that primitive man differed from advanced much as children differ from adults. He declared that primitive peoples physically tend to be relatively short-legged and long-armed, pot-bellied, smaller in size, physically weaker, with lesser powers of endurance and of resistance to disease, and with a smaller and more variable supply of nervous energy. Likewise, he found them relatively unstable in their emotions, impulsive, improvident, merry but easily changing from laughter to weeping, and subject to violent emotional explosions. As regards intelligence, he declared them to be superior in sense powers but lacking in curiosity, in powers of continued attention and mental concentration, and in capacity for analysis and generalization.

Criticism of Spencer. While Spencer intended this as a description of man's imaginary ancestor, it has been sometimes taken as a generalized description of the traits of primitive races. As such it is manifestly grossly misrepresentative. It does not fit even the pygmy races or the Australian aborigines, except as a crude caricature. Among the Negroes, Mongolians, Indians, Melanesians, and Polynesians there are many racial types with very fine physiques, combining great strength and agility with symmetry and beauty of form.

The primary error in Spencer's view was his supposition that all races had evolved in a straight line from the ancestral ape. As we have repeatedly indicated, this evolution was quite varied,

with many turnings, bifurcations, and even reversions. All races are consequently simian in some traits but wholly non-simian in others. The Negro, for example, is more simian than either Mongolian or Caucasian in facial angle, large jaw, receding forehead, broad and low nose, and shortness of hair. He is farthest of the three races from the apes in hair texture, hairlessness of body, and fullness and redness of lips. The white races are most simian in the quantity of body hair, while the yellow races are closest to the apes in coarseness and length of hair. These are only a few among numerous illustrations of the complex nature of human evolution in the large. While such considerations lead some scholars to the conclusion that it is useless to talk about superior and inferior races, this seems an illogical conclusion. If the races have evolved along quite different lines, we should expect some of them to be superior in certain traits, though perhaps inferior in others. In that case we might readily conclude that certain races were definitely inferior with respect to those qualities that are important in the development of a high state of civilization. Such races might be the least simian with respect to traits having little significance for cultural capacities.

The Nature of Racial Differences. In discussing the concept of race we pointed out that we must think in terms of averages or types and numerous variations about the average or type. We also pointed out that, with respect to any given trait, the variations of one race tend to overlap those of another. This is because all races are human and hence there is no physical or mental character found in one race which is not found in all. That is, all races have stature, head form, hair, intelligence, and artistic sense. The differences between them are solely in the extent to which they possess the various forms in which the human characters express themselves. Racial differences must, therefore, be thought of in terms of relative quantitative frequency in a statistical distribution, as illustrated on an earlier page by the differences in stature between Japanese and Norwegian soldiers. The differences between races are differences of degree and not of kind. It is this fact that makes the problem of racial inequality so confusing and difficult of settlement. For, it obviously results from these facts that the extensive overlapping of individual measurements shows that some individuals of any race are the equals of some of any other race.

Physical Traits. Little need be added to these statements to make clear the manner of conceiving physical differences. For any trait, say cephalic index or pigmentation, there is always an average value for a given racial type with more or less wide distribution thereabout. Consequently, we may think of all the races of men, *as regards any one trait*, arranged in a series of overlapping curves, as shown in Figure 18. For example, as regards stature, race A would represent a pygmy type with individuals as short as three feet and others as tall as five feet, and an average

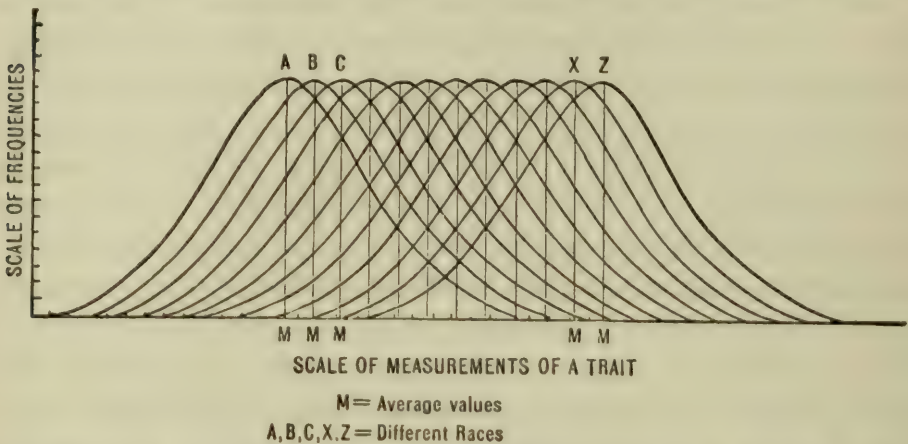


FIG. 18.—A purely imaginative chart to illustrate how a number of races might be theoretically arranged in a series, as regards the distribution among them of any single trait, such as stature or intelligence.

stature of four feet three inches. At the opposite extreme would be the tall Scotch, race Z, having an average of nearly six feet.

In this graph we have represented the extent of variation of all races about their average value as equal. This is by no means the case; the extent of variability differs from group to group and in the same group for different traits. The same race will not appear at the same place in such a series for different traits. The Negro, for example, would be at the right end of the distribution as regards depth of pigmentation, but at the left end for cephalic index, because he is long headed. The student can readily find illustrations of this gradation of races and of the shifting of position in the series, if he considers one after another such traits as stature, facial angle, eye color, weight of brain, etc. Of all human characters the size, weight, and structure of brain would be universally conceded to be the most important for determining the relative social worth of different racial types.

Psychic Traits. We have seen that the older anthropological view as represented by Spencer looked upon the culturally backward races as having the mentality of children. Similar characterizations are still often repeated. The recent Denver-African Expedition to study the African Bushmen, a short race with many well-marked traits and believed by some authorities to have been the original inhabitants of the African continent below the Sahara, described them with such phrases as the following: "untamable"; "lacking in the desire to advance or make any social adjustment"; "with powers of association like those of a very young child"; "hardly yet arrived at a state of conscious human existence"; "showing no realization of the relation of cause and effect in the objective, realistic sense."

Such characterizations now arouse a considerable feeling of skepticism. They would apply with little alteration to too many people whom we know in our own communities. It must be remembered as a basic principle that all people, the most brilliant as well as the most dull, inevitably think in terms of their own culture. Every person and every group works out a certain adjustment of psychic habit and behavior to environment, and thereafter lives largely in a routine manner. A racial group, living in considerable isolation, might thus appear to a traveler to be apathetic and lacking in curiosity, although capable of manifesting considerable intelligence under proper stimulation.

Professor Boas²³ and other American anthropologists²⁴ have shown that the earlier assumptions regarding psychic differences between races were grossly exaggerated. That primitive man is not lacking in curiosity is revealed by his extensive familiarity with those features of his natural environment which are essential to his welfare. That he is not lacking in inventive and creative ability is shown by his technical achievements and his ingenious utilization of materials furnished him by his natural habitat. He is thus not lacking in powers of attention and mental concentration. In much of his practical activity he exhibits that common-sense which rests on an appreciation of natural cause and effect, and in his proverbs and his theories of magic and religion he has shown considerable capacity for generalization and logical abstraction.

²³ Franz Boas, *The Mind of Primitive Man*, The Macmillan Co., 1911.

²⁴ R. H. Lowie, *Culture and Ethnology*, D. C. McMurtrie, 1917, Chap. ii.

The things that interest him, however, are distinctly different from many of the things which interest and hold the rapt attention of the white man. The primitive thinks, as do we, in terms of his own culture, and shows intense interest in and capacity for profound concentration for a long time on matters connected with his cultural background. In the same manner we may note that few college students are interested in problems of electrical research, but Edison becomes so absorbed in them he forgets his meals. Not only that, but it is easy to show that a large proportion of the members of the European races are extremely lacking in inventiveness and creative ability, are deeply attached to their tradition, and live in an atmosphere of primitive superstitions and taboos. They frequently show states of extreme emotional excitation, not only with respect to personal disputes, but also with respect to economic, political, and religious matters to which the savage would be utterly indifferent. Even in the United States are communities living in a state of backwardness that reveals the inherent unprogressiveness of man. In the isolated mountain coves of the southern Appalachians and the Ozarks one may find the language of Shakespeare's day, the theology of 1200, and the log cabin of 1620, with the open fireplace and the copper or brass kettle of similar date. One cannot, therefore, argue that primitive man is inferior because he manifests traits which are found among people everywhere. Indeed, we may once more recall the fact that our own ancestors were illiterate, uncouth, superstitious savages a few centuries ago, although they were as well endowed hereditarily as are we.

An Early Psychological Test. But the efforts to reach a satisfactory opinion regarding the relative mental abilities of peoples living at different cultural levels leave the matter in an inconclusive state, so long as the evidence is limited to the general observations of travelers, missionaries, or even resident anthropologists. Such evidences are too broad and general in nature. Since all races belong to the same species, the inherent psychic differences between them are not great enough to be determined by general observation under existing conditions. The primary reason for this is that these inherent differences are rather hopelessly confused with age-old differences in cultural history and opportunity. It is not feasible to place widely different races in the same cultural medium and thus test their traits under equal conditions,

although an approximation to this has occurred in the case of the American Negro. It is always possible for one school of anthropological opinion to attribute backwardness of culture to low intellectual endowment and for the other to attribute it to geographical isolation or inadequate contacts with other cultures.

Moreover, the earlier attempts to solve the matter by means of objective mental tests were not entirely satisfactory. In 1910 Professor R. W. Woodworth²⁵ summarized previous studies and gave the results of his own experiments with groups of primitive peoples at the St. Louis Fair. All of his methods were designed to test sensory motor powers and none of them would now be looked upon as adequate tests of the higher mental processes. This is important because just as there is little difference between the moron and the genius of the same race in sensory powers, along with an enormous difference in analytical and generalizing capacities, so it may be presumed that there is a much greater difference between advanced and primitive peoples in the higher mental capacities than in the sensory-motor powers.

Woodworth concluded that, "On the whole, the keenness of the senses seems to be about on a par in the various races of mankind." Nevertheless, he thought that some difference in the average power of the various senses was not improbable, especially if small, isolated, and inbred groups were compared with each other. He also pointed out that the average differences between Whites, Indians, Eskimos, Ainus, Filipinos, and Singhalese were small, and with much overlapping in statistical distributions, whereas between these groups and the Igorotes, Negritoes, and Congo pygmies "the average differences were great and the overlapping was small."²⁶ In so far as he was able to test the higher mental processes Woodworth found that these groups tended to rank in intellectual ability in the same order as their respective cranial dimensions. These results were about what would have been expected on *a priori* grounds and from general observation. They made it possible to look forward to further more detailed and comprehensive tests which would set forth not only the sensory and intellectual, but also the temperamental, differences of advanced and primitive peoples in more exact form.

²⁵ "Racial Differences in Mental Traits," *Science*, Vol. 17, 1910, pp. 171-186; and "Comparative Psychology of Races," *Psychological Bulletin*, Vol. 12, 1916, pp. 388-396.

²⁶ *Op. cit.*, p. 181.

Recent Mental Testing. Since the war, mental testing has been utilized to give a more exact determination to the question whether different races are of equal intellectual ability. Such tests thus far have not been conclusive, because there is obviously a close connection between the operations of the mind and the cultural background which the mind has absorbed. Consequently, tests devised for American public school children are likely to be more or less faulty when applied to Polish, Italian, or Chinese immigrants. On the other hand, the psychologists have made every effort to eliminate from the tests all bias due to purely cultural factors, so as to make them tests of intellectual power, and in this they have met with considerable success. Consequently, a high degree of probability attaches to the results which they have achieved, especially with a great variety of non-language, performance tests. This is, however, far from a closed issue. Opinions differ so widely as to the validity of the tests thus far used that further confirmation, or disproof, should be eagerly awaited.

We may, however, find a plausible but perhaps tentative illustration of the above criteria of how races should be conceived in the results of the mental testing of White and Negro in this country. Professor Joseph Peterson ²⁷ made a critical summary of twenty-eight different studies up to 1923. On this basis, as well as his own independent researches, he concluded that "the intelligence of the Negro race as represented in America is about that which would give him an I. Q. of approximately 75 to 80 per cent when compared with the Whites of his own section of the country or with fair samples of the white people generally." On this basis he concluded that "about 83 per cent of the whites are more efficient than the Negro of median ability, while approximately only 15 to 18 per cent of the Negroes reach the Whites of median ability." If these results were plotted on curves of variation they would be represented by two curves with more overlapping than A and C on p. 132. If this conclusion appear somewhat extreme, one may feel quite confident that, as regards those mental capacities which are tested by the testing psychologist, the Negro as a racial group, but not as a particular individual, has been definitely proven to be inferior to the White.

This conclusion is again what would have been expected on a

²⁷ "Comparative Abilities of White and Negro Children," *Comparative Psychological Monographs*, Williams and Wilkins, Vol. I, 1923, No. 5.

priori grounds and on the basis of general observation. The Negro brain is 10 per cent smaller than that of the White and of somewhat different conformation. This would give strong presumptive evidence of differences in their average mental endowment. Moreover, there seems to be a sufficient historical basis for the assumption that the Negro is less well endowed with culture-producing capacities than the white man. Although he has been in contact more or less directly with various advanced civilizations in both ancient and modern times, he has made almost no contribution to the higher intellectual activities of those cultures—philosophical, artistic, or inventive. On the other hand, as above stated, the Negro seems to be well endowed with qualities of temperament and rhythmic appreciation and expression. He has created the most distinctive folk music in this country and seems destined to make further contributions to American musical, literary, and artistic expression.

European Racial Mental Traits. In this connection a word may be said regarding many efforts to describe the mental traits of the primary European races. A Frenchman, Vacher de Lapouge, gave a description of them which has often been repeated, especially by Madison Grant, William McDougall, and other advocates of Nordic racial superiority. By these writers the Nordic is described as highly intelligent, endowed with marked energy, enterprise, and daring, a vigorous spirit of personal independence and self-reliance, an aggressive spirit, great emotional stability and self-control, reserved manner, deep religious sincerity, and a marked capacity for war, statesmanship, and rulership.

As compared with the Nordic, the Mediterranean is usually characterized as more highly gifted with intellectual finesse and acumen, artistic feeling, and creative imagination. On the other hand, he is said to be excitable, impulsive and fickle, sociably inclined, attached to religious form but lacking depth of religious feeling.

The Alpine is described as ranking below the Nordic in intellectual capacity and as even more lacking than that type in artistic and imaginative powers; he is stolid, passive, patient, industrious, and lacking in both the spirit of personal independence and the capacity for social organization and administrative control. Lapouge²⁸ calls the Alpine the perfect slave: "Il est le parfait esclave,

²⁸ V. de Lapouge, *L'Aryen, son rôle social*, Paris, 1899, especially pp. 233 and 481.

le serf idéal, le sujet modèle." "Il est inerte, il est médiocre, mais se multiplie. Sa patience est audessus des épreuves; il est sujet soumis, soldat passif, fonctionnaire obéissant. Il ne porte pas ombrage, il ne se revolte point."

It is not impossible that there is considerable truth in these characterizations. In view of the great differences in the evolutionary history of different racial groups, there is no reason to suppose they are more alike in hereditary intellectual abilities and temperamental qualities than they are in hereditary physical traits. On the other hand, whatever truth there may be in the above psychological characterizations of European races, it has been grossly exaggerated and caricatured in the cultivation of race egotism and prejudice. There are several considerations applying to all efforts to characterize races psychologically.

(1) The technique for an exact determination of racial mental traits by means of objective tests is not yet adequately developed. We are just beginning to get satisfactory tests of temperamental qualities,²⁹ while those for mental level have not fully succeeded in separating inherent qualities from qualities due to culture and training. These latter tests have, however, acquired a high degree of plausibility and may certainly be considered highly suggestive of measurable differences between races in mental ability.

(2) Culture or social tradition, especially group standards of right and wrong, of demeanor, of success, and of social values, greatly affect the behavior of a people. Thus behavior in America has been affected by the decline of religious orthodoxy, the increase of wealth, the enactment of the prohibition amendment, etc. Social subordination may limit the expression of inherent capacities, as is seen by a comparison of Negroes in slavery and in freedom. It is, on the other hand, easy to exaggerate the influence of such conditions, because the culture and tradition of any people is greatly affected by their inherent qualities. In many respects the culture of a people is largely, if not fundamentally, an expression of their abilities and temperament. Moreover, new elements in the culture of a people cannot create in them new qualities; it can only give hereditary qualities an opportunity for fuller expression. Hereditary psychological characteristics are as persistent as hereditary physical traits.

²⁹ S. D. Porteus and Marjorie E. Babcock, *Temperament and Race*, Richard G. Badger, 1926.

(3) It is extremely difficult to determine what is characteristic of a people as diverse as those of western Europe. Both the motivations and the racial elements among them are so varied that quite opposite kinds of behavior occur at different times. Thus the French are largely Alpine and yet sometimes they manifest the traits popularly attributed to the Mediterraneans who are also numerous among them.

(4) Finally, and most important of all, is the fact that racial differences are never absolute, but only relative. Consequently, even if Nordics, for example, are, as a rule, more energetic and adventurous than Alpines, there are many Nordics who are wholly lacking in these qualities while many Alpines show them in high degree.

We may here recall the overlapping of racial statistical distributions. All the mental traits possessed by man are possessed by all the races, but are not possessed by all of them in equal degree. Mental traits must be conceived as distributed in the same manner as the statures of Norwegians and Japanese. There seems no longer any doubt that the average White American is superior in intellectual capacity to the average Negro American; but this would also mean that a sizable proportion of Negroes were superior to the average White, to say nothing of inferior Whites. In the same manner it seems probable that the Nordic Europeans are somewhat more gifted with aggressiveness and self-reliance than the Alpines or Mediterraneans, while the latter are more nimble in wits, more emotional and imaginative, and more sociable.

RACE AND CULTURE

Loose Identification. It was formerly the fashion, even in anthropological circles, to assume that there was a close correlation between race and such elements of culture as language, religion, government, and art. That is, it was assumed that the Greek language, for example, was in some special manner the peculiar product of mental qualities possessed solely by the Greeks. Consequently, we had in wide use such terms as Aryan, to designate a race which was supposed to have originated the various branches of the Aryan languages. In the same way the term Celtic was applied to a race which was supposed to have introduced Celtic tongues and other elements of Celtic culture into western Europe.

In the same loose fashion it was customary to speak of the Latin race and also of the German race, or the French race, and so on. In this connection it was assumed that the more highly developed cultures were the unique products of the more highly endowed races, and that consequently there was a correlation between inherent racial intelligence and the complexity of their language or the state of evolution of their culture in other respects. In this manner it was deemed possible to show that there was a hierarchy of races corresponding to the hierarchy of languages and cultures. It was assumed that the races had produced their cultures and that superiority of culture was indubitable evidence of superiority of race.

— **Racial Determinism: Aryanism and Nordicism.** The most outstanding examples of such reasoning in modern times were the doctrines of Aryanism and Nordicism. Aryanism was a doctrine of special white race superiority. It was developed during the middle nineteenth century and put in classical form by Count Arthur de Gobineau in his famous *Essay on the Inequality of Races* (1853-1855). Philologists had shown that all branches of the European tongues—Greek, Latin, Germanic, Celtic, and others—were related to the Sanskrit. This gave rise to the theory that there was an Aryan race which had originated the basic Aryan tongue, of which all the above mentioned languages were highly evolved developments. Since high cultures were associated with these languages, the theory also added that the Aryan race was the one and only race gifted with sufficient intelligence, organizing capacity, and powers of artistic creation to develop a truly advanced culture.

In a somewhat special and later form this doctrine was profusely elaborated as the theory of Nordic supremacy. It was claimed that the tall, blond, long-headed race of northwestern Europe had been the creator and organizer of all the civilizations, both ancient and modern. It was particularly argued that the leading men among the Greeks and Romans and of the Renaissance in France and Italy were possessed of Nordic traits. At the hands of certain German enthusiasts the theory was advanced that Jesus was a blond and that Christianity was in consequence a product of Nordic genius. Since the tall blonds were looked upon as a race of warriors, statesmen, and rulers, gifted with an unequaled energy, a fine sense of justice, an invincible spirit of personal liberty, and a

genius for organization, most of the good things of the modern world were attributed to them. The mixture of Nordic with other blood was vigorously opposed as diluting the fine qualities of the superior breed and resulting in a mongrel population. Moreover, since it was increasingly evident that western Europe was becoming more and more brachycephalic, the Nordic propagandists prophesied the imminent decline of European culture. A factor contributing to this belief was the decreasing size of families among the aristocracy and upper classes, who were assumed to be overwhelmingly Nordic in race.

Among the German people the racial extremists advanced the doctrine of the special civilizing capacities of the Teutons, and among the Americans that of the special and superior endowment of the Old American stock. The special form of this doctrine in England is known as Anglo-Saxonism, or the unique mission of the Anglo-Saxon race to carry the blessings of liberty, democratic government, and even-handed justice to all parts of the world. Among the French similar doctrines were developed, only in this case it was the so-called Celtic, or Gallic, race, the race which was believed to have formed the basis of the French nation, to which were attributed the superlative powers and culture-producing capacities. In all cases these doctrines flattered the strongly emotional feelings of both racial and national loyalty. They were, therefore, important doctrines in national and racial self-esteem; they figured importantly among the doctrines leading to vigorous self-assertion in the pre-war days, and are still more or less essential to the feelings of race prejudice and race antagonism prevailing among all western nations.

Criticism of Traditional Racialist Theories. The rise of physical anthropology, however, long since dispensed with the appeal of these doctrines to informed persons. In the first place, students of the racial composition of peoples made it clear that the association between race, conceived as a group of hereditary biological characteristics, and language or other culture trait may be due to cultural diffusion or historical circumstance. It was shown that persons speaking the same language were often of highly diverse physical type, and that persons of similar physical type frequently spoke different languages. An interesting illustration may be found in the varieties of racial elements found among the Celtic-speaking peoples. Thus the Goidelic (Gaelic)

dialects of the Celtic languages are spoken by the Irish, the Scotch, and the Manx, and the Brythonic (Cymric) dialects by the Welsh, the Bretons (of France), and the Cornish. The Scotch, however, are largely Nordic in race, the Welsh are primarily Mediterranean, while the Bretons are overwhelmingly Alpine. There is thus no such thing as a Celtic race. Similarly, English is now spoken by peoples of widely different races in all parts of the world. The French language and French culture are shared by every variety of the European races. So also with respect to German culture, and the political and economic institutions of the English people.

In the second place, the physical anthropologists made it clear that the racial elements entering into the population composition of the peoples who created the Persian, the Greek, the Roman, the Renaissance, and western cultures were highly heterogeneous. There was some evidence that tall blond men of Teutonic, Anglo-Saxon, or Nordic type formed an ingredient in these populations, but in most cases its proportion was small and the rôle which it played impossible to determine. It is, indeed, this fact of race mixture which has made it impossible thus far to form any accurate notion of the relative rôles played by the Nordic, the Mediterranean, and the Alpine racial types in the development of different aspects of European culture or the outstanding events of European and American history. Even the Teutonic tribes, such as the Goths, Visigoths, Franks, and Burgundians, who played more or less conspicuous rôles in western European history 1,500 and 2,000 years ago, were already considerably mixed in racial composition. Indeed, paleoanthropology shows that mixture of racial elements, even back at the beginnings of Neolithic times, was so extensive that there is no part of western Europe in which the head forms, as revealed by Neolithic or even Paleolithic skulls, were of uniform type.

In view, however, of the fact that the regions about the Mediterranean were for several thousand years the chief centers of advanced culture, it is quite clear that the European races, notably the Mediterranean, were endowed with the qualities essential for the creation of great civilizations. It is equally clear that some other races would not have been able to create equally brilliant civilizations at the same times and places. It is not at all probable that African Negrilloes or Australian aborigines could have created any of the civilizations of the Mediterranean Basin.

We may safely say that these three European types contain excellent ingredients out of which to compound a population fitted to rear a culture of unusual merit. Moreover, although we cannot now prove beyond peradventure of doubt any special or unique relationship between any one of the European races and particular features of the European civilizations, it seems highly probable that Nordic, Alpine, and Mediterranean have differences of temperament, if not also of intelligence, which are of some significance for the evolution of important phases of culture.

In the third place, an enormous amount of study devoted to racial origins has raised considerable doubt as to the existence at any time of a group which might properly be called the progenitors of the Aryan peoples. One result of these researches is that informed scholars no longer apply the term Aryan to a race, but reserve it to designate a group of languages or other cultural elements of Aryan-speaking peoples. In fact, it is not known when or where the Aryan or Indo-European languages arose or had their beginnings; even less is known regarding the racial characteristics of the peoples among whom they began. It seems at least plausible that they arose in an area of considerable extent, inhabited by a number of tribes among whom dialects of a common tongue were spoken. As these tribes spread to new habitats and conquered the indigenous populations, their languages underwent evolution along with other elements of their culture, thus giving rise in the course of some thousands of years to such varied developments of the original tongue as Sanskrit, Persian, Greek, Latin, the Celtic languages, the Germanic languages, and others.

Similarly, the researches of a vigorous generation have failed to reveal the cradle-land of the Nordic race. While various authors have placed this cradle-land in different parts of Europe, there is such wide disagreement as to demonstrate the present hopelessness of the query. Thus German and Scandinavian authors contend that the tall blond European developed his present characteristics in the regions around the Baltic, either in Scandinavia or in Germany. Other authors find the original home-land in some part of Russia, north of the Black Sea or between the Black and the Caspian seas, while others find it in Hungary or even in western Asia or Siberia. Moreover, as just indicated, the more thorough the investigation into the prehistoric racial history, the clearer it becomes that there was a mul-

titude of migratory movements extending back many thousands of years and leading to a sufficient amount of race mixture to reduce racial purity at nearly all times or places.

All these facts taken together have tended to destroy whatever credibility may have at one time attached to the doctrine that the tall blond European was alone endowed with the capacities necessary for the rearing of civilization. They have tended, on the other hand, to show that civilization has always arisen in areas favored by advantageous geographical and climatic conditions in which there was a considerable variety of racial elements.

Then there is another consideration which has made it impossible to discover the relationship of particular racial endowments to the development of culture, namely, *the diffusion of cultural elements*. Obviously, elements of culture are more or less readily transferred from one racial group to another. All men are endowed with similar intellectual capacities and emotional attitudes, and are, therefore, qualified to imitate the cultures of each other. In our own day we see that the factory system which originated in England near the close of the eighteenth century has spread to nearly all parts of Europe and America; it is now spreading to Japan, China, and India, while its development has affected the economic life of all other peoples everywhere on the globe. The automobile has in a quarter century spread to all parts of the world. This facile diffusion of cultural elements is incontrovertible proof of a broad similarity in the cultural capacities of widely dissimilar races.

Racial Determinism versus Cultural Determinism. In consequence of this emphasis on the ease of cultural diffusion, there has arisen an anthropological school which claims that race has nothing to do with the development of culture, that all depends on cultural contacts. The views of this school will be presented more at length in a later chapter, and the briefest summary must here suffice. They point out that isolation inevitably results in cultural stagnation, even for a gifted race. They emphasize the fact that quite different races share the same culture; that all races have achieved something creditable to their racial capacities; that not long since our own ancestors were barbarians. This last fact shows that enormous cultural changes can occur without any change whatever in racial quality, a fact which shows that cultural evolution does not require racial evolution as

its basis. They thus make out a case for the doctrine that culture produces culture. By this they mean that men think and feel in terms of their own culture; that it is the latter which suggests to them new wants and the ways to meet them; and that there is a necessary order in the chain of events which we call cultural ebb and flow, just as it is impossible to have the wagon before the wheel was invented, an automobile before the wagon, or the airplane before the automobile. There is no doubt much to be said in favor of the cultural determinist position. We return to it for fuller statement in a later chapter.

A Tenable View. It does not follow, however, that hereditary racial differences have no significance whatever for cultural development. We have seen that, within the broad similarities which make all men human, there are many physical variations which make it possible to discriminate one race from another. In the same manner, it is logical to assume that there are differences in intellectual capacity and in temperament. Brain size and conformation differ considerably from race to race and presumably involve mental differences. Moreover, we must remember that there is a great difference between the power to create and the power to imitate. A person of ordinary musical gift may play on the piano a selection which only a musical genius could compose. In fact, even the imitations may be crude and uncomprehending. The Negro, for example, may absorb and imitate many elements of white culture which he could not possibly create. It is inconceivable, in view of what we know regarding Negro intelligence, that he could have discovered the Newtonian laws or created the marvels of modern mechanical engineering. On the other hand we see in our own day that the Japanese, though only recently in contact with western culture and widely removed from the European in physical characteristics, have been able, not only to adopt highly diverse and extremely complex elements of western culture with the greatest ease, but even to make original contributions to such highly technical aspects of that culture as medical science and chemical research.

Similarly, differences in temperament and taste will affect the character of social institutions and of the æsthetic products at a given time and place. Thus the Negro seems to be highly gifted with a certain type of rhythmic appreciation and expression and with distinct differences in temperament from the White.

His poetical, musical, and emotional creations and expressions will, therefore, show more or less distinct differences from similar activities of the White. While, then, we must say that the cultural differences now found among the races are doubtless much greater than the inherent endowments of the races, we must also say that, even under the same environmental and cultural opportunities, different races would doubtless produce cultures differing one from another in the level of achievement in different directions and in moral and æsthetic qualities.

Finally, it should be repeated that all three branches of the Caucasian race give evidence of high gifts and of ability to produce those men of genius without whom a high state of civilization could not be achieved. It is this fact that invalidates the claims of Nordic propagandists that the tall blond race alone has culture-producing capacities. It would seem, in fact, that some combination of these three types constitutes the best racial basis for a high cultural state, so far as occidental history goes. Professor R. B. Dixon,³⁰ having shown that some combination of them was present in various areas of ancient civilization, adds: "Lastly, the marvellous development of modern European civilization has occurred in that region in which Alpine, Mediterranean, and Caspian (or Nordic type) have been more completely and evenly fused than elsewhere in the world. Is it perhaps more than mere coincidence that the reawakening of culture in Europe after the Dark Ages began at a time when, after a period of centuries during which wide shiftings of peoples had occurred, the new fusion of the elements had been begun? Is it mere chance that it was in the north of Italy, in Tuscany and the valley of the Po, where the influence of the Caspian-Mediterranean immigrants was strongest, that the Renaissance began; that in Germany it was in the south where the Baltic peoples had in large numbers blended with the older Alpines and Palæ-Alpines, rather than in the north where such amalgamation was less clear, that the revival of culture had its start; that many of the forerunners and leaders of the Reformation, such as Huss, Luther, Zwingli, Calvin, all came from regions where the fusion of types must have been vigorously going on? The complexity of the causes underlying all such great movements are, it need hardly be said, very great, yet I cannot but feel that, among the many potent

³⁰ *The Racial History of Man*, p. 515.

factors which have determined or directed the rise of modern European civilization, this one of the fusion of Alpine with Mediterranean-Caspian elements has an important place. That the contact of two different peoples often produced a stimulating effect upon culture has of course often been noted; the point which I would make here is that this stimulation seems to be at a maximum when the peoples belong to the Alpine and to the Caspian or Mediterranean types."

Rôle of the Individual and the Gifted Minority. In this connection, however, a very important addition must be made to the foregoing considerations, namely, that advances in culture, whether in the form of utilitarian inventions, literary products, scientific discoveries, or philosophical generalizations, are made by a relatively small number of highly gifted individuals. If we study the history of western art, science, philosophy, or invention, we may be surprised at the very small number of persons who have made any distinctive contribution thereto. Only a few men in a million have the capacity to solve even moderately difficult practical problems. A still smaller number have the capacity to solve theoretical problems of moderate difficulty. If, then, we contemplate the superlative geniuses whose contributions have marked great stages in the advancement of any phase of culture we shall see that they may be counted as less than one in a million. Indeed, men of the caliber of Leonardo, Wagner, Shakespeare, Newton, and Darwin appear to be only one in many millions of those born among the peoples of western Europe. It seems highly improbable that such rare combinations of talents will be born with equal frequency among different races.

If, now, we relate these considerations to the question of racial differences and their significance for cultural evolution we will see that the differences in the cultural contributions of different races may be vastly greater than the average differences of their capacities might lead one to expect. Any comparison of the respective mental levels of White and Negro, for example, shows that there are reaches of intellectual ability attained by a considerable number of Whites which are never attained by any Negro. Now it is precisely these very superior white men who have constituted the originators and organizers of the advances of western culture.³¹

³¹ See graph of mental scores in Army tests for illustration, Chap. vi, p. 223.

Cultural conditions, which suggest nothing but standardized conformity or embarrassing difficulties to commonplace minds, produce in these superior minds the unique and original responses which constitute the new points of view, the new inventions and scientific discoveries, and the new creations in the fields of the drama and the opera. It thus happens that there are many features of western culture which a race no more highly endowed than the Negro could never have created by his own initiative, some features, indeed, which it cannot even comprehend.

APPLICATIONS TO AMERICA

The Negro Problem. In applying the foregoing discussion to racial problems in America the first question which naturally arises is, What of the Negro? Several things may be said. In the first place, we see no ground for discriminating against the individual Negro on the basis of race. As we have shown, many Negroes are superior to the average White and vast multitudes of them are quite the equal of white persons. In fact none of them falls below those levels of idiocy and imbecility which are reached by many Whites.

In the second place, our discussion of race mixture shows that the grounds of opposition to the crossing of white and colored stocks are social rather than biological. Race crosses do not seem to result in physical disharmonies or mental instability, where the stocks are sound. In so far as Whites are superior to Negroes the offspring will be intermediate. So far as the general quality of the population is concerned there may be in such cases some loss to the white stock, though not necessarily, because the crossing has usually been extra-marital between white males and colored females and has thus not prevented the fathers from having a full quota of white offspring. At the same time, any loss to the white stock is compensated by a gain to the colored, which thereby acquires leaders of the utmost importance to its cultural advancement. Indeed, careful study shows that more than nine-tenths of the leaders of the Negro people in this country have been men of mixed blood.³² The chief objection, therefore, to White-Negro marriages is the intense and blind race prejudice

³² See particularly E. B. Reuter, *The Mulatto in the United States*, Richard G. Badger, 1918.

which ostracizes and otherwise works hardship upon the participants. This intense opposition to inter-racial marriages is partly offset by the fact that mulattoes find larger opportunities for employment and are accorded more respect than are pure Negroes. They rank high among colored people and associate more freely with Whites. Obviously a few generations of extensive race crossing would so obliterate the color line as to largely solve the Negro problem.

There are several reasons for supposing that the proportion of white blood in Negro veins will, however, increase less rapidly in the future than in the past. There are twenty-six states that make marriages between the races illegal. The growth of race consciousness and pride among Negroes renders Negro women less accessible to white men. This tendency is in part offset by the recent great migrations of colored people from the South to northern cities. This diffusion of the race brings them into more frequent contacts with Whites and increases the opportunities for miscegenation. Moreover, there are in the northern cities considerable bodies of Europeans who have no prejudice against black-white intermixture, even in the form of regular marriage. On the other hand, as the Negro communities in the North become large and set apart in more or less segregated districts, they will live more and more to themselves. A larger proportion of the sexual relations of white men and colored women will take the form of prostitution. This and the more general practice of birth control will reduce the frequency of illegitimate mulatto offspring.

But regardless of the rate of fresh infusion of white blood into the Negro stock, the proportion of Negroes with mulatto traits will increase, because of the wider diffusion through the race of the existing large quantity of white inheritance. This diffusion is hastened by the operation of sexual selection among Negroes since light-colored mates are preferred to dark ones. We may expect, therefore, that the Negro in America will become lighter in skin color with less kinky hair, and more even in features with thinner lips. Moreover, it should be recalled that there is a considerable ingredient of Indian or Mongoloid blood in the American Negro. As a whole, therefore, he is sufficiently mixed to present considerable variation, a condition favorable to selection and improved adaptation. As natural selection continues to work upon him, he

should also show an increasing racial adaptation both to temperate zone climatic conditions and to modern urban and industrial life.

In the third place, Negro vital statistics are being deeply affected by several important changes. Since the cutting off of European immigration the Negro has found a larger place in northern industrial communities. The Census shows that there were 415,500 Negroes in the North in 1910 who had been born in the South; by 1920 this number had increased by 322,000, to 737,500. If we add to these the deaths among these immigrants it seems likely that the migrants from South to North during the decade must have numbered nearly, if not quite, 500,000. There were nearly 1,500,000 Negroes in the northern and western states in 1920. At the same time there has been a considerable movement of Negroes to the developing industrial cities of the South. This urbanization of the Negro seems fraught with momentous consequences. While the vital statistics of the Negro are notoriously unreliable, such as they are they indicate that there is no northern and scarcely any southern city in which his death rate does not exceed his birth rate. This is due to the excessive ravages of tuberculosis, pneumonia, venereal diseases, typhoid, hookworm, malaria, and homicide.

The dispersion of the Negro from his more natural habitat in the rural districts of the South to the North and to urban centers results in a lower fertility and a higher mortality. A report of the Metropolitan Life Insurance Company showed that the death rate from tuberculosis among its policy holders was twice as great for Negroes as for Whites; and between ages ten and fourteen it was eleven times as high for boys and eight times for girls. Infant mortality is from two to four times the White rate. In the future, however, this death rate should be reduced by better housing, greater cleanliness, and the gradual adaptation of the Negro to temperate zone conditions, both through experience and through climatic selection. If, however, he continues his northward movement, especially in those age groups where marriage is most frequent and fecundity the highest, and if birth control spreads in the colored community as rapidly in the future as it has in the recent past, it is not improbable that in another decade his deaths will exceed his births. This may prove, however, to be only a temporary condition during the period of his readjustment to modern urban and industrial environments. In any case, he constitutes a

dwindling proportion of the American population. We may even expect his gradual absorption in the course of the next few centuries into the general population.

Immigration. Another important aspect of the racial problem in America grows out of the enormous number of immigrants to this country, especially between 1897 and 1914. There never has been a country in the entire history of the world which received such masses of immigrants as we received in successive waves after 1840. Records kept since 1820 show that the number rose more or less steadily from 7,000 or 8,000 per year to over

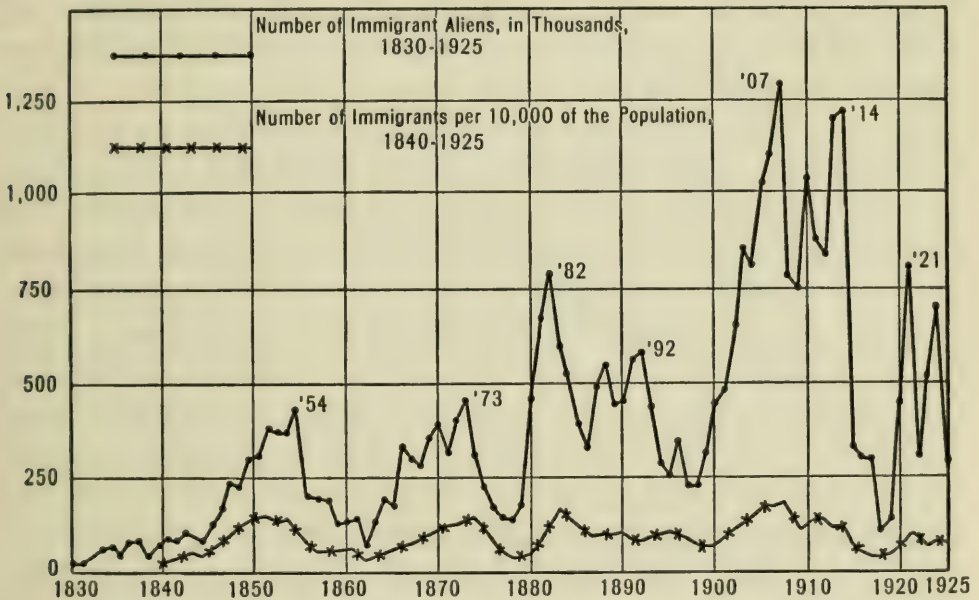


FIG. 19.—The waves of immigration since 1830.

60,000 between 1835 and 1840. The accompanying chart shows the rise and fall of immigration since 1830. The first great wave of immigration was associated with the Irish famine of 1845 to 1848, the number rising to 379,466 in 1851 and to 427,833 in 1854. There was at this time also a great influx from Germany on account of the Revolution of 1848. Thus in 1851 the immigrants from the British Isles numbered 272,740 and those from Germany 72,482, these two comprising more than 90 per cent of the total immigration. In 1854 these two groups contributed respectively 160,253 and 215,009. As our chart shows, the next wave followed the Civil War, and a still greater one covered the period from 1880 to 1894. During all this period the predominant streams were from the British Isles and Germany.

The newcomers from the latter country alone numbered over 250,000 in 1882. After 1870, however, there were numerous immigrants from Scandinavia, their number reaching a maximum for all time of 105,326 in 1882.

This same year saw a considerable increase in Italian immigration (32,160), which previously had been a tiny rivulet. This South European movement, however, did not reach great proportions until 1900, when for the first time the number of Italian immigrants reached 100,000. Meanwhile, considerable streams had begun to flow from Russia (predominantly Jewish) and Austria-Hungary. These three streams, Italian, Russian, and Austro-Hungarian, swelled to portentous proportions in the pre-war period, 1898-1914.

We may thus make two generalizations regarding these waves of migration. They have been closely associated with political conditions in Europe, and with economic conditions both here and abroad.³³ Since the Civil War the latter conditions have been of special importance, although anti-Semitism in Europe doubtless accounts for a considerable portion of the Russian and Polish Jewish migration. The first two waves of the post-Civil-War period were connected with the settlement of the Mississippi Valley and the West. Here was free land in abundance for the land-hungry peasants of western Europe. After 1890, however, free land became too scarce and too poor in quality to serve as an attraction. This was a period also of rising prosperity in Germany and Scandinavia, checking migration from there. The last pre-war wave, therefore, was due to the rapid industrial expansion in this country. Whereas the immigrants of the earlier periods had gone primarily to the farms and villages of the West and secondarily to the manufacturing centers of New England and the East, the Italian, Russian, and Austro-Hungarian influx flowed almost exclusively into the great factory and mining centers of the East and North.

The second observation is that what is called the "Old" immigration was primarily from northwestern Europe, while the "New" was overwhelmingly from eastern, central, and south-eastern Europe. This meant a change both in racial elements and in cultural backgrounds. The old immigration was composed of stocks containing a large ingredient of Nordic blood, whereas the

³³ Harry Jerome, *Migration and Business Cycles*, Nat'l Bur. of Econ. Res., 1926.

new was either predominantly Mediterranean or Alpine. The Jews, moreover, who came to number several millions, while containing ingredients of the several European races according to their country of origin, also contained a large proportion of Semitic and Hittite ancestry. The newer immigrants were, therefore, more distant in blood from the Old American stock than the British, Scandinavian, and German migrants of previous generations. Moreover, these latter settled very largely in the country where the alien features of their culture were thinly spread and readily subdued by the American atmosphere. The newer immigrants, however, settled in more or less solid masses in industrial and mining centers; they had their own priests and their own foreign-language newspapers, spoke alien tongues, and often maintained schools for the instruction of their children in their mother-tongue. This piling up of great masses of immigrants in the cities, their expressions of sympathy with their mother countries, and the intensified nationalism in this country due to the war, were factors leading to the Ku Klux Klan, the Hundred Per Cent American, and the Immigration Restriction movements of the post-war period. The war had sharply checked immigration from Europe in 1915 and thereafter the influx from Canada and Mexico, as well as from the West Indies, increased strikingly. Post-war legislation has so restricted immigration from Europe as to make it negligible in quantity, but it has increased migration from neighboring countries, especially Mexico.

Restriction. Even before the war, it was becoming increasingly apparent that the country was getting full of people. The frontier period had virtually closed by 1890. But it took the shock and scars of war to arouse the country to decisive action. Under the emotional stress of the European conflict, various alien groups in this country gave expression to love of their home-lands and hatred of their enemies, which, while natural, were out of harmony with the spirit of American citizenship. Fear arose lest large masses of aliens could not be properly assimilated to American ideals and folkways. Amidst the highly suggestible and timid mentality of war time, it was easy to convince great numbers of otherwise sane persons that the foreign elements might readily foment a socialistic or communistic revolution in this country. Moreover, there was every indication that post-war conditions in Europe would result in a perfect avalanche of

fresh immigrants. This was a factor leading the organized labor groups, for the first time, strongly to favor restriction. They rightly feared lest the high wages which they had attained during the war would be undermined by a fresh flood of labor.

But perhaps the basic motive leading to restriction was the desire for greater national solidarity and homogeneity. The war intensified national consciousness and gave rise to powerful movements favoring law and order, increased national security, and the purging of the life of the nation of persons, ideas, and practices not in harmony with idealized American tradition. The Americanization Movement swept the country. Like all such deeply emotional movements it accomplished considerable harm along with its good. It gave free rein to the spirit of intolerance and persecution; it tended to wipe out various harmless and often beautiful foreign customs which added color and variety to the American scene. But it led to some education and naturalization of aliens.

It must be said, however, now that restriction is accomplished, that time and the stress of life are the best of all assimilators of the foreign elements. There were, for example, in 1925, still about 2,500 foreign language newspapers published in this country. Their number will decrease rapidly during the next decade or two. The public schools and universal compulsory education are teaching the English language to all. The steady and inevitable inroads of death dissolve the ranks of those reared on foreign soil. Within a score of years the leadership among the non-American stocks will be in the hands of those reared amidst American institutions. The dissolution of the solid masses of Little Italies and Little Hungaries is also furthered by marriages between persons of different nationality. Thus education, the attritions of the practical affairs of every-day life, death, marriage, and birth, gradually dissolve the alien communities. But this does not mean that American life will henceforth be the same as it would have been had there been no recent immigrants. The fact is that the blood of the nation is being changed and changed rather rapidly. A new amalgamation will in time result, but it will be in many important respects quite different from the Old American stock.

Quality of Immigrants. According to long-accepted tradition in this country, the immigrant was superior in energy, stamina,

courage, and ambition to the general mass of his countrymen whom he left behind. There was much ground for this opinion when this country was new, travel slow and difficult, and the qualities of the pioneer essential to migration and settlement. But during the quarter century 1895-1920 conditions of travel became so facile that even a moron could go from a remote part of central Europe to an inland American city. He had only to move with the tide, every step facilitated by steamship agents and fellow nationals. Our immigrants thus came to include a great floating population, coming here for a few years and then returning. These and many similar considerations gave rise to the question whether recent immigrants were of as good quality as those of earlier days.

It was shown that, of immigrants during the decade 1899 to 1909, only 2.7 per cent of those fourteen years of age and over from the "old" immigrant nations could neither read nor write, while 35.6 per cent of the "new" immigration were thus illiterate. This illiteracy ranged from 0.4 per cent for Scandinavians and 1.1 per cent for English to 54.2 per cent for South Italians and 68.2 per cent for Portuguese. At the same time it was argued that illiteracy was not a measure of inherent ability, but rather of the educational facilities in the various countries.

As to pauperism, it was shown that, while there was much abject poverty among the newer immigrants, the Irish and the Germans more frequently became actual paupers than any other groups. But this was explained as probably due in large part to their longer residence here, their greater proportion of aged, and their greater familiarity with the laws of the country. As to crime, it was shown that the foreign-born were less given to law-breaking than the "native-born of native parents," the most frequent criminality being found among the "native-born of mixed (foreign and native) parentage." It was shown that waves of immigration did not correspond to waves of crime, and that there had been no increase in the number of convictions per 100,000 of the population with an increase in immigration. It was, however, shown that the Italians were given to crimes of violence with undue frequency and that the immigrants from Italy, Russia, and the Balkan states committed more than their proportionate share of crime. At the same time, it was argued that those immigrants were, as a rule, the most ignorant and

brought with them the greatest amount of cultural differences, two causes of social maladjustment to American conditions.

Intelligence Tests. Beginning with the Army tests of 1917-1918 there have been many mental tests of immigrant groups. It is unnecessary to summarize these here as they have tended, on the whole, to bear out the relative ratings established by the Army psychologists. The accompanying chart shows the Percentage Distribution of Letter Grades of Intelligence of Foreign-Born Men in the Army Draft.³⁴ In this chart black indicates the proportion of E, D -, and D individuals, white the proportion of A and B individuals, and the intermediate section the proportion of C -, C, and C + individuals. The actual percentages of the black and white portions are indicated at the sides. The ratings A and B indicate "very superior" and "superior" rank; C, average; and D and E, "inferior" and "very inferior." Such a chart should not be accepted as final, but rather as raising important questions for which conclusive answers should be sought. (Figure 20.)

Much controversy has raged about these and similar data. The mental tests have been declared valueless by some on the ground that they are deeply affected by language and cultural differences. It is shown in various ways that success in passing tests is correlated with amount of schooling. As to the Army results, it is emphasized that the scores rise rapidly with length of residence in this country. This is interpreted as showing that the earlier immigrants entered the country at younger and more plastic ages, and being longer exposed to American culture, acquired the ability to pass the tests.

To these arguments it is replied that the tests have proven their value in practice over many years and under varied applications. It is pointed out that there were special tests for the illiterate, the Beta tests, which were proven to show a high correlation with the Alpha tests given the literate. It is also shown that the Chinese and Japanese, who might be presumed to have the greatest language and cultural handicaps, nevertheless excel most other alien elements. Moreover, it seems clear that the brighter individuals would more quickly acquire a language and cultural adjustment to American life. As to the change in the

³⁴ From "Psychological Examination of Men in the U. S. Army," *Memoirs*, Nat'l Acad. Sci., Vol. XV, 1924.

scores with increasing residence several things may be said: (1) that the twenty years before the war saw a great improvement in transportation, thus enabling lower and lower grades of immigrants to make the journey with ease and safety; (2) that

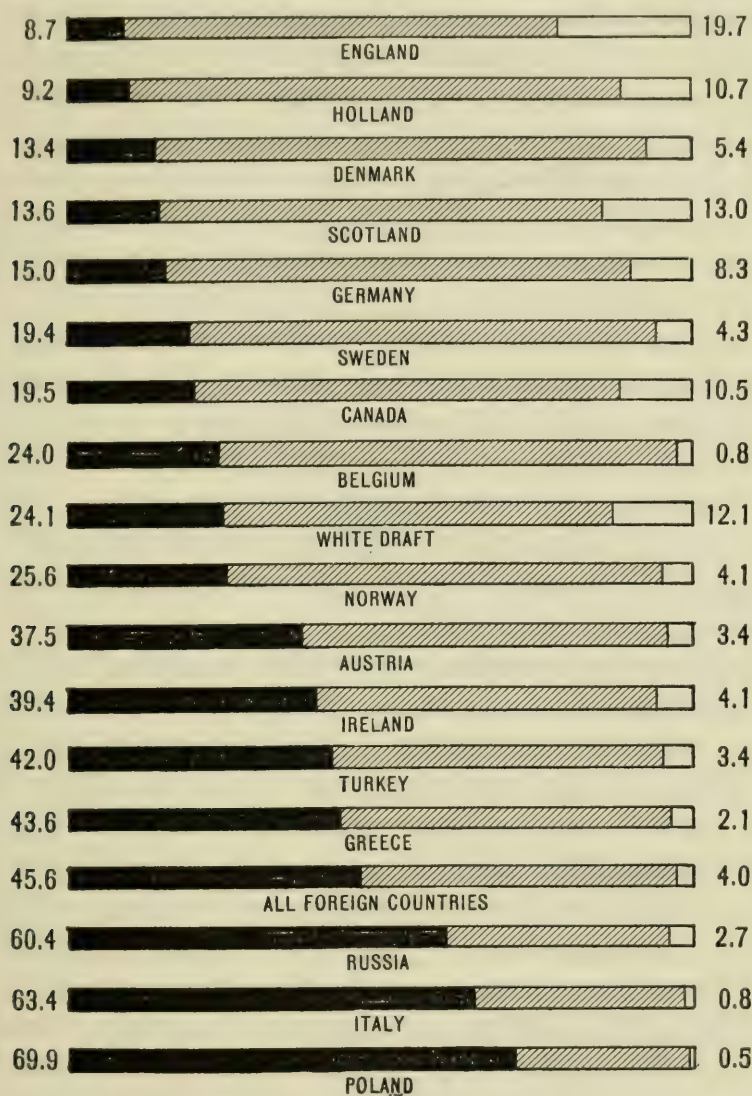


FIG. 20.—Results of the Army psychological tests of immigrant aliens by letter grades and nationalities. (See text.)

these increases in shipping facilities applied particularly to southern Europe; (3) that this was a period of great industrial advance in Germany and northwest Europe, furnishing a home market for their growing populations, whereas Italy and the Balkan States witnessed an increasing pressure of population on national resources.

There is truth in these arguments on both sides. But in view of the fact that more than a score of extensive investigations by varied tests have tended, by and large, to support the findings of the Army psychologists, we seem warranted in concluding that the newer immigration, especially that from Greece, Russia, Italy, and Poland, was less well-endowed mentally than the older. This conclusion applies solely to immigrants to this country, not at all to the intellectual rating of their nationalities abroad.

Sound Immigration Policy. It has become evident that a racially sound policy of immigration must rest on the principle of selection. America is now so populous that it need not depend on foreign countries for its labor supply. In the long run, the maintenance of our high state of well-being will depend on the intellectual capacity and physical soundness of the population. We might very well, therefore, adopt a policy of not admitting anyone to this country as an immigrant alien who was below the average American in physical and mental standards. The establishment of such standards would be admittedly difficult, but the combined efforts of psychologists and anthropologists could make a satisfactory approximation.

Racial Future in America. The Old American stock is universally admitted to have been well-gifted in both brains and physique. It had a proportion of idiots, imbeciles, and morons, but its rank and file were sturdy, energetic, capable, and well-balanced, and it produced a considerable number of geniuses, especially in the various fields of practical life. What of the future?

Professor Aleš Hrdlička, from many years' study, concludes that the future American will be somewhat darker in complexion, slightly shorter in stature, and slightly broader in head form. In temperament he will be more sanguine and less strenuous and serious than his precursors. Moreover, as we indicated on a previous page, there is ground for supposing that the musical and artistic activities and achievements of the nation will greatly increase, for both racial and cultural reasons.

But we are far from concluding that the racial future is bright. The study of the intelligence level of recent immigrants darkens the prospect. Their blood will in time suffuse through most of the population. They have a high birth-rate, in some groups more than twice that of the Old Americans, and they live under religious and economic conditions which tend to preserve their

fecundity. Moreover, in all nationality groups, the upper classes who are shown by many tests to excel in both physical and mental endowments, are reproducing at very slow rates. This is, indeed, the most ominous feature of our racial future.

It would almost seem that a high state of civilization can only be bought at the expense of racial decline. It is not at all impossible that our own contains within itself the seeds of its own destruction. By the extensive mechanization of industrial processes and the minute division of labor we have made it possible for great masses of people with scarcely more than moron intelligence to maintain themselves and rear offspring. Their standards of life place little restriction on their multiplication, whereas the pace has been so intensified for all who raise themselves above the mass that children are looked upon as handicaps. It would seem that some decline in average intellectual capacity is inevitable.

SUMMARY

Having discussed the origin of man in Chapter II we went on in this chapter to a study of his diversification into races. Our first problem was to develop a tenable conception of race. We found that such a conception must include the ideas of type or average, of variation about the type, and of a complex or combination of traits which adhere in heredity from one generation to the next.

We then inquired what traits are most important for distinguishing races one from another. This is a problem made extremely difficult by the extensive race crossing that has occurred in most areas, resulting in wide overlapping of related types. The most important traits for the physical anthropologist are head form and hair form. The latter is taken as the basis for the primary distinction of races in several classifications; finer distinctions are then made by differentiating primary types according to head form, shape of nose, stature, or complexion. Classifications inevitably differ more or less.

Any classification reveals the fact that the races cannot be arranged in a serial order from ape to blond Europeans. This may be interpreted to mean several things: (1) that the main lines of descent separated a long time ago; (2) that each line has evolved by different mutational variations and different environmental

selections; (3) that we are not yet sufficiently acquainted with racial history to indicate even approximately the intervening steps whereby each type reached its present form.

We saw that the European populations are extensively hybridized. We noted this particularly in the case of Great Britain because the original American stock was derived primarily from the British Isles. The evidence is convincing that the Old American stock is a mixture of at least two of the primary European races, the Nordic and the Mediterranean. It is somewhat more frequently brunet than blond. These facts do not support the popular view that Americans belong to an idealized Anglo-Saxon race of pure type.

We did not, however, find evidence for the doctrine that race mixture is necessarily deleterious in itself. Where it seems to be so, we found either (1) that there was a crossing of low-grade strains, or (2) that half-breed or mestizo types were placed at a social disadvantage by their ostracism by both parent stocks. On the contrary we found that race crossing increases variability and hence the plasticity and adaptability of a population. We found some grounds for supposing that it gives rise to an unusual number of superior individuals. We also argued that high civilizations have always arisen in areas of great race mixture and always after such mixture has made considerable progress. As to the argument that race crossing leads to a decline of civilization, we advanced the counter argument that such decline seems more reasonably explained by a dying out of the abler strains from the population as a whole.

As to the question of race equality, we found reasons for rejecting both the view that the races are grossly unequal and that they are about equal. The most acceptable view at present is that the races are different in intelligence and temperament, and that these differences are of some importance for cultural achievement. The most important differences, so far as cultural values are concerned, are brain size and structure. There is every reason to suppose that the races differ as much in these respects as they do in other physical traits. In this connection it may be noted that the European races are apparently on a par, or nearly so. At the same time there is ground for supposing that their combination gives rise to a population better qualified for high cultural attainment than any one of them alone.

As to the Negro in America, we found that he seems to be undergoing some racial change. These changes are the result of race crossing and of the vigorous environmental selection evidenced by his high death rate. There is a possibility that he may become a dwindling portion of the population, not only relatively but absolutely. There is also the possibility that he may be more and more absorbed into the general population.

As to immigration, we found grounds for supposing the "old" was better than the "new." The hardships of travel and settlement in a strange land would have resulted in a more frequent selection of hardy pioneer types in the earlier period. The more recent immigration has been sufficiently extensive to permanently alter the American racial averages. In physical type the future population will tend to be darker in complexion and shorter in stature than the founders of the nation. The recent flood of migrants from southern and central Europe will also affect the intelligence and temperament of the "average American" of the future. If they seem likely to make him somewhat less intelligent, they will make him more sanguine in temperament and more artistic in taste.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. If pure types of the European races are rare, how can the anthropologist be certain as to the primary European races?
2. If blond traits appeared in a brunet race, how could they multiply so as to produce a blond race, if brunetness is dominant over blondness?
3. Why is blondness more frequent in childhood than in maturity?
4. What reasons are there for accepting or rejecting the psychic characterizations of the European races?
5. If Jews vary so much among themselves, why is it nearly always easy to recognize them?
6. Why is the American Indian placed under the Mongoloid races?
7. Is there any biological explanation of heterosis?
8. What evidence is there that men of genius are often of mixed race?
9. Is there any prospect that all races may eventually mingle so as to form one humanity?
10. Does White-Negro crossing necessarily lower the mental level of the white race? of the population at large?
11. Why does the Spanish-Mexican cross-bred population seem to be inferior?
12. Do you think a strong sense of racial worth has been an advantage in the historic struggle of races?
13. What are the special grounds for the exclusion of oriental immigrants?

14. Is the fact that the Negro has lower average mental ability sufficient ground for the establishment of a race caste?
15. Devise a scientific immigration law.

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CHAPTER IV

OUTLINE OF THE FACTORS IN SOCIAL LIFE

Purpose of this Chapter. This is a transitional chapter. It seems best at this point to indicate the next steps in our study, for they are essentially analytical rather than historical. Having now had a brief sketch of human origins and racial diversification, we proceed next to a study of the causative factors which give rise to social forms and institutions. Thereafter we shall make a survey of the origins and social rôles of several of the primary social institutions themselves. This short chapter is, therefore, merely a suggestion of what is to be treated in more detail in the next four chapters.

Scientific Method. All science is a unit in that it has a certain uniformity of method. It is commonly supposed that this method begins with the observation and accumulation of facts. This is doubtless sometimes the case. But the massing of facts is not science. Science is rather their classification and the elucidation of their interrelationships. It really begins with the discovery of facts that require more adequate explanation, or with the realization that current theories regarding facts are faulty. Having discovered something needing further explanation, the scientist formulates an hypothesis to that end. In so doing he uses all his knowledge, his powers of analytical thought, and a disciplined imagination. The validity of the hypothesis is then tested by further observations. Fellow scientists busy themselves in criticising the hypothesis and comparing it with their own observations and hypotheses. In time a tenable theory is worked out and widely accepted. This is all very much like the activities of a detective when confronted with a mysterious crime. He makes a preliminary survey, analyzes the known and the unknown factors, and formulates a series of hypotheses. Investigation and the unearthing of more facts lead to a rejection of various hypotheses; the range of probable explanations is narrowed, and at length, if successful, the true theory is made plain. But, just as individuals are sometimes wrongly convicted, so scientific hypotheses long

accepted often need to be modified or expanded by some new and far-reaching advance. Science is thus never a completed body of knowledge but is constantly in process of formulation.

The Aim of the Social Scientist. The aim of the social scientist is an understanding of social life. He seeks either to discover the modes of interaction of individuals and groups constituting a society, or to understand how the social life at any time and place came to be what it is or was.¹ In so far as he is pure scientist he has no ulterior aim, such as the improvement of the condition of the poor, the reduction of crime, the advancement of international peace, or the increase of human happiness. These are all very worthy motives, and are doubtless deserving of immense effort. But experience indicates the wisdom of separating the scientific from the practical aims. Social causes are extremely complex. It follows that the formulation of hypotheses which are true to the facts and at the same time capable of application is no easy task. Moreover, we should doubtless have some difficulty in agreeing as to just what "social betterment" means in concrete terms. In any case, the economist, political scientist, or sociologist is not a social reformer. His first aim is to understand social life in terms of the causes, conditions, or processes whereby it has come to be what it is now, and will become what it will be at a later date. }

Meaning of the Term "Factor" or "Cause." The scientist studies the cause and effect relationships of phenomena. When he has made clear the "cause" or "causes" of an event in nature he is said to have given a "scientific explanation" of it. What he actually does is to seek out the conditions essential to the appearance of that event or phenomenon. When he knows what conditions, if present, will produce the event, and, if absent, will prevent it, he has reached a scientific understanding of it. These essential conditions may be either antecedent to or coexistent with the event. So great is the regularity and dependability of nature that when the essential conditions of a phenomenon are all present the phenomenon inevitably appears, or the event occurs, and an alteration in any one of these conditions carries with it an alteration in the accompanying phenomenon. A cause of any event may thus be defined as a necessary antecedent or co-existent condition. A result would then be defined as the event

¹ Cf. F. J. Teggart, *Theory of History*, Yale Univ. Press, 1925, p. 164.

which inevitably occurs together with or following its essential conditions. This does not mean that a given social event has only one cause; it is very likely, indeed, to be the result of a combination of many causes. Moreover, any one of these causes, if absent, would prevent the event or phenomenon, even though all the other causes or conditions were present. Everything that occurs may thus be viewed as a part of a genetic or evolutionary process. One of the primary traits of this process is a definite uniformity in cause and effect relationships, like causes always producing like effects. This regularity and dependability on the part of nature are essential to the work of the scientist, and also for the applications of scientific knowledge to the improvement of human life. In their absence there would be no such thing as a scientific law nor any utilization of science in industry, health, education, or any other human interest or activity.

The scientist always deals with proximate causes. In fact, his causes are merely the results of preceding causes, so that every effect becomes in its turn a cause in an endless chain of cause and effect reaching from the beginning to the end of time. Since there can be neither beginning nor ending of time, this chain is of infinite length. The evolutionary process or the continual change in all nature is thus endless in both directions. Now the scientist does not concern himself with problems of the beginnings of things nor whether there is a purpose or ultimate meaning to them. He seeks rather to understand them in their more immediate relationships. The causes which he seeks are contained within things themselves. His "explanation" is only a *description* of the way things occur in nature, and his "causes" or "factors" are only the accompanying *conditions* of the events which are thus explained. For example, one of the conditions essential to economic prosperity is an abundance of crops, and good crops are conditioned by rainfall, among other things. If, then, we ask why water affects crops in the way it does, the scientist can only say that that is due to the nature of the chemical processes involved in plant growth; and these processes in turn are explained by the nature of the chemical elements involved in them; and the nature of the elements is explained by the nature of the protons and electrons of which they are composed; and the nature of these in turn is an apparently ultimate fact. The scientist can only find out how these apparently ultimate particles of matter and energy

behave. He does not attempt to say where they came from, why they have the qualities they manifest, nor whether they are specially designed to serve some mysterious divine purpose.

The last word in scientific explanation is, therefore, to trace the endless chain of cause and effect back to the chemical elements. In a broad way it is true that everything, even including ourselves, must be an expression of the potentialities of these infinitesimal particles. Thus the social prosperity which is due in part to the way rain affects crops, is due to that extent to the nature of the elements that enter into water and into growing things. But the social scientist would of course content himself with describing the more immediate relations between social phenomena and their associated conditions. He would be interested in how the crops affect prosperity; which crops are most important; how variations in them are associated with variations in industry; and how these latter affect political life, marriage and the family, vital statistics, and related matters.

Social Causes Complex. It should be clear that the causes of social phenomena are vastly more complex than those of physical, chemical, or biological phenomena. They arise from the interaction of men living in groups. Professor F. H. Giddings points out that social phenomena begin with the tendency of creatures of similar organic structure to respond in similar ways to the same stimulus. He says: ² "The behavior in which the sociologist is interested is the apparently simultaneous reaction of a considerable number of individuals that happen to be in the same situation or circumstance. Their reactions may be alike or different; equally or unequally alert and persistent. This behavior we call multi-individual or pluralistic. It develops into group ways, class ways, and folk ways, and into organization."

Now these group, class, and folk ways, which together with their institutional products constitute the distinctly social phenomena, are extraordinarily varied in size, durability, complexity, and social significance. They are classifiable as economic, political, familial, religious, ceremonial, juridical, legal, ethical, and so on, and each class is intertwined with every other in a great variety of ways. The conditions essential to their development include not merely all the conditions essential to man's existence

² F. H. Giddings, *The Scientific Study of Human Society*, Univ. of N. Car. Press, 1925, pp. 50-51.

as a mere organism, but also all the conditions essential to his mental stimulation and development, that is, to his existence in organized groups or societies. Man is, as Aristotle said, a political animal, that is, he finds the conditions necessary for his highest development only in a good society.

Classification. We may very simply and yet comprehensively classify the essential factors of social life under the following four heads: (1) Geographical or Physiographical; (2) Biological; (3) Psychological; and (4) Cultural. On the basis of such a classification we may define Sociology as *a synthetic explanation of the origins and evolutionary changes in the forms and activities of human groups in terms of their geographical, biological, psychological, and cultural conditions.*

Geographical. Under the first will be included all the relations of terrestrial conditions to social life. These constitute the primary interest of Human Geography; they are also of great interest to the economist and will be found to affect every type of social phenomena. The social group and all it does and achieves are in many intimate ways related to or affected by the climate, soil, and topography of its habitat. We shall see that the habitat is one of the factors affecting man's physical development and hereditary constitution. Through struggle with and coöperation with the elements and resources of its physical environment, every society satisfies its primary needs for food, clothing, and shelter. Since the earth supplies these primary essentials and man's life is, therefore, so closely dependent thereon, we shall find the habitat a factor in the development of group customs, morals, religion, art, and philosophy.

Biological. Similarly fundamental to a full understanding of man and society are the biological factors. Although man stands at the apex of the animal world and is even widely removed from his nearest ape relative, he is, nevertheless, found to be subject to the same biological processes which operate in the rest of animate nature. Among these are multiplication, heredity, variation, the struggle for existence, and natural selection. Their study is the chief concern of Human Biology, sometimes more narrowly and less accurately called Race Hygiene or Eugenics. The type of culture attained at any time or place is dependent in part on the numbers of the population, their physical and mental vigor, the level of their intelligence, their tempera-

ment, and the frequency with which they produce remarkable men. The rise and fall of civilization will be found to be affected to some extent by these factors. Neither chimpanzees nor morons would be capable of developing, maintaining, or even imitating any complex type of human culture. The quality of the population is, therefore, an essential condition of any high human attainment and its maintenance.

Psychological. Social life, as distinguished from purely isolated individual life (assuming such to be possible), is in essence the psychic interstimulation and response of members of the group one with another. Social psychological processes, therefore, permeate the whole of it. The study of these is the primary interest of Social Psychology. The historian in so far as he endeavors to understand the events of history rather than merely to detail them must also be a social psychologist. These psychic processes are also of profound significance for Economics, Politics, Ethics, Religion, and every other special field of social inquiry. A knowledge of social psychology is, in fact, an essential condition for fruitful study of any phase of social life. At no time in his long history has man, so far as any evidence indicates, lived as an isolated individual. Certainly paleolithic man lived in groups, and every advance in culture has enlarged and diversified these groups. Whether or not man is a herd animal, man as we know him is unthinkable apart from organized society. Consequently, fundamental importance attaches to an understanding of his associative tendency, and the suggestibility and imitation that grow out of it. It is only in this way that we can understand group cohesiveness, order, and organization.

There are two quite different approaches to the study of social psychological phenomena. We may, as social psychologists, view social phenomena as expressions of man's hereditary predispositions and capacities; or we may turn the shield over and view human behavior at any time and place as the result of the molding of individual attitudes and habits by the social tradition. While some social psychologists go so far as to hold that man's mind, his humanity as distinguished from his animality, is developed in him by the social group in which he lives, it is equally true, on the other hand, that every element of culture is in some way an expression of human needs and capacities. One's cultural milieu shapes his sentiments, emotions, and habits of thought,

and yet the cultural milieu originates, grows, and is modified only in consequence of individual psychic powers.

Cultural. It is thus clear that culture is not an independent factor in its own evolution; it is derivative, secondary, and dependent. The cultural factors are thus in a somewhat different category from the geographical, the biological, and the psychological. These have an independent existence of their own, whereas culture in its origins is their combined product. Once its evolution has begun, however, it becomes a very influential factor in its own further evolution. We make a fourth class of factors which we call cultural, because these factors are found to be highly important for setting the problems and furnishing the suggestions for the minds that will produce modifications and improvements in that culture itself. It is for this reason that, in the definition of sociology given above, we have introduced "cultural conditions" as one of the terms in which culture itself is to be explained. Indeed, as we shall see in a later chapter, the culturistic approach to the study of social life is so significant that many would make it the distinctive field of sociological interest.

By this is meant that what has already been achieved, and particularly the state of the industrial arts and the general cast of thought, become primary determiners in the next steps in social evolution. The automobile, for example, could not have been invented until man had reached the age of steel, the gasoline engine, and the rubber tire, with all that these imply in the way of previous technical advance. In this way the existing culture suggests further steps in culture. It is, on the other hand, equally potent in suggesting that the existing state of culture is as near perfect as seems desirable, thus giving rise to what is called "cultural inertia." For purposes of sociological analysis, therefore, much importance attaches to cultural trends, the concentration of attention and interest in consequence thereof, cultural contacts and diffusion, the homogeneity or heterogeneity of cultural elements, and similar conditions.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. What are the methods of science?
2. Do the methods of the social sciences differ from those of science in general?

3. Can the social sciences use the experimental method, or are its experiments being constantly made for it by actual life?
4. What are the various concepts of sociology to be found in text books?
5. Is sociology primarily a study of social ills?
6. How might the spirit of reform vitiate the value of sociological studies?
7. How would you define the respective fields of the various social sciences, economics, politics, ethics, anthropology, and others?
8. Make a preliminary analysis of the life of your community showing how each of the four primary factors affects it.

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CHAPTER V

THE PHYSIOGRAPHIC FACTORS IN SOCIAL LIFE

THE EARTH AS A STAGE

The Original Factors in Social Life. If it is a useful exercise of the imagination to see the history of our earth as a part of the history of the solar system, it is an equally good exercise to see the whole of human history as intimately bound up with the history of the earth. The earth was already immensely old when the first humanoid forms appeared. During most of this time conditions on the surface of the globe were apparently not suitable for human habitation. Moreover, there is considerable ground for supposing that the infinitely varied forms of life that have appeared during many millions of years underwent repeated alteration, often of a cataclysmic or revolutionary sort, in consequence of changes taking place in temperature, rainfall, and surface conditions.¹ In Chapter II we saw that the flora and fauna of western Europe underwent repeated change of far-reaching sorts as glacial and inter-glacial phases alternated with each other. Man could not have appeared, therefore, until geographical conditions were suitable. It follows that he cannot continue to exist on this planet, if at any future time conditions should become such as to destroy life in general.

We may thus say that the two original factors in all social phenomena are earth and man. What we call culture was the result of the interaction of these two factors. If we compare this statement with the classification given in the previous chapter, we see that what we there called the biological, the psychological, and the cultural factors in the development of social life may be included in one or other of these two original factors. Their separation for special study is due to their interest and importance and to the necessity of such analysis in order to give clarity and concreteness to our thinking.

¹ See for a full development of this idea, Ellsworth Huntington, *World Power and Evolution*, Yale Univ. Press, 1919.

It is thus possible to look upon the earth as a grand stage upon which man has played the drama of history. "All the world's a stage, and all the men and women merely players." Every human event, whether in the life of the individual or in that of a social group, occurs under conditions of time and space which imbue them with an earthly quality. Every feature of the earth's surface and every process in nature, both organic and inorganic, has some significance for historical event and social life. A decisive battle may turn on the conditions of the weather; an empire may fall into decay because diminution in rainfall greatly reduces its food supply. Such changes as those witnessed by prehistoric man in western Europe necessarily involved great changes in mode of life and extent of social organization. Sunshine, rainfall, mountain, river, rivulet, and spring, the rotation of the earth on its axis, and its revolution about the sun are all parts of nature's setting for man's struggle for life and happiness. Some of these conditions are easily alterable by man, others only slightly so, and still others not at all.

Unalterable Conditions. The most fundamental of these conditions are forever removed from any human influence. Here are included the primary essentials of earthly space and time, the effects of the sun's heat and its variations, the revolution of earth about the sun, the inclination of the earth's axis, the daily rotation of the earth on its axis, the general surface topography or configuration, and the natural energies of the sun. The importance of these things is obvious and taken for granted, but it is worth while to reëmphasize them. The sun is the sustainer of life, for every living thing on the globe would perish if the sun's heat and light were wanting. Moreover, there are recognized but still mysterious connections between sun spots and the magnetic currents of the earth. The connection of these currents with weather conditions is not yet clear, but it is to-day less improbable than it seemed a generation ago that there may be some connection between the ten to fourteen year cycle of the sun spots, the weather changes, the crops, and business.

Every schoolboy knows that the inclination of the earth's axis of $23\frac{1}{2}^{\circ}$ to the plane of its orbit around the sun is responsible for those changes which we call seasons. The orderly procession of the seasons in all parts of the globe completes a full cycle with each revolution of the earth. Corresponding with this annual

cycle is a cyclical ebb and flow of life, plant and animal, which constitutes one of the universal conditions of social life and individual behavior. It was shown nearly a century ago by various social statisticians that the number and kinds of crimes, the number of marriages, of births and deaths, the rise and fall of business activity, and the nature of myths and religious festivals, are all deeply affected by the periodic changes due to these primary astronomical facts. By the growth of his knowledge of how to store foods and raw materials, and of how to utilize artificial heat and cold, of how to vary his food, clothing, and habits of life, man may ward off or soften most of the direct effects of seasonal changes, but he can in no way alter those changes themselves. Nevertheless, this statement of the matter brings out the very fundamental truth, that earth conditions, even when unalterable, are not inexorable in their effects. They represent rather conditions to which man, by means of increasing knowledge, can work out a more perfect adjustment.

It is the seasonal change, plus the earth's topographical configurations,—oceans, continents, and especially mountains,—that account for the primary air currents, such as the trade winds, the counter-trade winds, and the Indian monsoons. These in turn account for the distribution of rainfall and hence for rainy and dry seasons, for deserts and impassable tropical forests. It does not seem at all probable that man can ever exert any appreciable influence on the wind currents or on rainfall. But here again he may learn how to overcome nature's handicaps. He can, to some extent, irrigate deserts, drain swamps, and cut highways through the jungle.

There is, however, no more interesting aspect of human geography than the study of the relations of prevailing winds to rainfall and hence to vegetable life and therefore to animal life, and through these to the natural resources and the natural obstacles for human habitation and social life. What a sharp contrast between the desert nomads and the jungle tribes in every aspect of their modes of life, their morals, political organization, family life, and religion! Yet these differences find important roots in the inclination of the earth's axis, the annual revolution around the sun, the prevailing winds, and the seasons of warmth and cold, rain and drought. The dryness of Sahara, the coldness of Greenland, the wetness of the Amazon Basin, the floods of the

Nile, the climate of every spot on the globe is affected by these conditions. Of similar origin are the great ocean currents. They are perhaps less significant, although they have permanent effects on the climate of many areas, such as those of the Gulf Stream on northwestern Europe, of the Japan Current on the northwestern coast of America, and of the Labrador Current on north-



FIG. 21.—Currents of the North Atlantic. These currents explain why Labrador is an icy waste, while Ireland, in the same latitude, is called the Emerald Isle. What is the relation of these currents to the Newfoundland fog banks? To trans-Atlantic airplane flights? Map from L. W. Lyde, *The Continent of Europe*, Macmillan & Company, London, 1924, by permission.

eastern Canada. These currents not only affect temperature, but in coöperation with prevailing winds are basic factors in rainfall also. They thus affect plant and animal life and become important conditions of human activity. (Figure 21.)

The general configuration of the earth, the size, shape, and positions of oceans and continents, of mountain ranges and lakes, likewise constitute important stage pieces for the human drama. These features of the surface have divided the earth into areas

of different degrees of isolation or accessibility. They have prevented a complete mingling of different types of men, and have controlled the direction and extent of migratory movements throughout most of man's life on the globe. They have thus set limits to the area through which given types of culture or individual culture traits might easily spread. They have, therefore, been highly important conditions for the differentiation of races, for race mixture, and cultural diffusion. In fact, if one can image a relocation of important mountains or seas, he must also image profound changes in the historical record of the peoples associated therewith.

Finally, among the unalterable geographical conditions, of tremendous importance are the energies of the sun's rays, of radioactive substances, and of electromagnetic currents. Of these by all odds the most important, so far as we now know, are the sun's rays, for they are an essential basis of life. Where they are weakest the earth is enveloped in perpetual snows and no man lives. Everywhere they have been important factors in climatic selection, thus bringing about racial differences in skin, nose, lungs, and physiological adaptation. Their significance for mode of life is obvious.

It is possible and not unprofitable to view the evolution of human culture as the development of man's power to control and utilize the earth's energies. Such a view is far from a complete one and yet the elevation of the material basis of social life, and all that depends thereon, from the growth in numbers of population to the cultivation of the fine arts, rests upon an increasing utilization of nature's energy resources. We have scarcely begun to utilize the full force of the sun's rays as agencies of food, health, and power. We have only begun to dream of utilizing the tremendous power of the tides. Recent scientific progress in the study of radioactive substances, cosmic and other rays, and the atom, have pointed to the possibility in the future of tapping boundless sources of energy in forms which can be transformed into power and materials in ways that only a short while ago would have seemed truly miraculous.

Moderately Alterable Conditions. It is here that we meet certain geographic conditions that stand midway between the strictly unalterable conditions of an astronomical character and certain readily alterable conditions of the earth's surface. We

refer to wood as a building material and to the fuels, wood, coal, and oil, depositories of the sun's energies of past ages, which are subject to slow, or in some cases, rapid, exhaustion and which serve advanced civilizations as primary sources of energy. At the present rate of consumption visible oil resources will last only a few decades more; coal will last for many centuries. In many places wood has already been virtually exhausted. It seems probable that the denudation of forests, as in parts of China, resulted in soil obliteration by destructive floods. It would inevitably follow that areas of dense population would be transformed into barren hills. In less extreme cases, as in America and western Europe, the cutting down of the forests would increase flood dangers and soil erosion, but these can be prevented by policies of conservation. Timber resources can be conserved, cut areas reforested, and substitutes found for wood, both as fuel and as building material.

Alterable Conditions. Among conditions quickly and easily alterable are (1) the courses of streams, in many cases, so as to prevent floods, carry traffic, and furnish power and irrigation; (2) the cutting of forests, with results mentioned above; (3) the soil can be prepared for cultivation, exhausted by continued use, and restored to fertility by natural and chemical manures; (4) surface topography may be modified in many ways, from landscape gardening to the digging of canals, leveling hills, dredging harbors, creating islands and lakes, draining swamps, and so on; (5) stone may be quarried, and minerals and metals mined; (6) all sorts of materials may be transformed by physical, chemical, and vital processes and thus turned to good account in raising the material basis of life.

The alterations of the inorganic environment are too numerous to detail. Every form of building, transport, and communication involves transformation and utilization of materials and forces furnished by nature. Perhaps the most important single item here is the discovery and development of sources of mechanical power. It is possible to maintain that the basic difference between our own civilization and all that preceded it flow from the discovery of the power hidden in steam, coal, and electrical energy, and of means for setting this power to work. Ours is the first and only great civilization built on free labor. The progressive reduction of human drudgery and the enhancement of material

comforts rest squarely on the generation and utilization of mechanical power. Nothing could show more clearly the dependence of the state of culture on the knowledge and arts of engineering. Nothing could show more clearly that the same habitat may have at different times many different cultures, depending on the state of man's capacity to make use of the varied properties which his stage setting furnishes.

Among the most easily alterable features of the physical environment is the organic life it contains. Spencer noted that the original organic environment is dependent on the inorganic. In the evolutionary series the inorganic precedes the organic so that in every area the organic development is directly dependent on the potentialities of the inorganic resources. Alfred Russel Wallace (1823-1913) ² lists the conditions essential for plant life as sunlight, warmth, moisture, suitable atmosphere, and alternation of day and night. Most plants also require soil for attachment at least. Different plants are adapted to different combinations of these essentials so that some form of vegetation grows even under the most unpromising conditions, from arctic snows to desert sands. Nothing illustrates the almost infinite variability of living structures more completely than the existence on the earth of hundreds of thousands of plant forms.

In much the same way in which plants are dependent on climate and soil, animals are dependent on plants. Here is a primary illustration of the interdependence of living things which gives to nature a high degree of interdependence and solidarity. Plants are the primary agents for transforming the sun's energy and the inorganic resources of the earth's surface into organic compounds suitable for animal food. Some animals supply food for others and these in turn for still others. We shall see in the next chapter that the "web of life" is extraordinarily complex. But whatever the web, it is firmly attached to the climate and soil.

There is another reason for looking upon the original organic environment as having a secondary or indirect influence on the evolution of culture, namely, the fact that man subjects it to great alteration as he progresses. He chops down forests, destroys noxious plants and animals, kills the germs of infectious diseases, cultivates grains, cotton, tobacco and other domesticated

² Alfred R. Wallace, *Man's Place in the Universe*, Doubleday, Page and Co., 3d ed., 1905, Chap. xi.

plants originating in distant lands, and rears domesticated animals imported from the ends of the earth, so that with time he may completely alter the organic environment in every important respect. A well-cultivated farm, for example, may have on it scarcely a plant or animal of its native wild stock. In general, we may say that man alters his organic environment in three ways: he destroys what is injurious or useless, he increases the growth of what is useful, and he introduces from other areas plants and animals contributory to his welfare.

Among advanced peoples, as those of the United States and Europe, the state of culture has, in fact, determined the general nature of the organic environment. Thus, although no form of cotton is native to America, two-thirds of the world's supply is now grown in the southern states; similarly, of all our cereals, only corn is a native and that has been greatly altered by selective breeding. This should not be interpreted to imply that the organic environment is of little importance. Even where he very substantially alters the flora and fauna of his habitat, he does so only within the limits and in the ways the habitat permits. He cannot grow oranges or cotton in New England. Moreover, once he has thus adapted the environment to his needs, he finds his whole social life deeply affected thereby. The cultivation of cotton in the South, for example, fixed slavery and all that it implies on southern institutions and brought on the greatest Civil War in history.

The organic environment has, therefore, a permanent and profound importance for social life. Man derives from it not merely his food, but his clothing and shelter. He devotes most of his efforts toward increasing his supply of organic materials and elaborating them into products suitable for his consumption, and these efforts, constituting the primary concern of practical life, affect political, legal, moral, and religious institutions. We may say that, for primitive peoples, the organic environment is dependent on the inorganic; for peoples with advanced cultures, the organic is greatly affected by knowledge and the industrial arts; and that at all cultural levels the environment, both organic and inorganic, react powerfully upon human activities.

Not Control, but Utilization and Adaptation. Such modifications multiply with every advance of the industrial and mechanical arts. Primeval man wandered about his habitat gleaning a

subsistence from the ready-made products of nature and using for shelter suitable objects of the landscape, trees, bushes, rocks, and caves. His progress since then is marked by an increasing utilization of earth's resources and an increasing protection against the natural elements, rain, sun, and temperature, in so far as found injurious or uncomfortable. Can we say then that man *controls* his environment? This does not appear to be the best term. It should rather be said that man either *utilizes* his environment or *adapts himself* to it by altering his mode of existence. He utilizes water power, electrical energy and other forces, conditions, and materials of nature. Men living in different habitats adapt themselves to their various climatic and topographical conditions, not, as do the plants and animals, by differences in bodily structure and function, but primarily by inventions and mode of life, by houses, clothing, parasols and umbrellas, germicides and insecticides, skates, boats and airplanes, furnaces, and refrigerators. As a rule they utilize some of nature's resources to adapt themselves to some of the conditions which she imposes, as when we use coal to keep us warm. In fact the problem of material existence and welfare may be said to be adaptation to nature through her utilization. While progressive utilization and adaptation are based on increasing knowledge, it may even be said that natural conditions exert a certain control over cultural evolution by setting limits to human habitation and endeavor, by directing migration and settlement, and, in general, by compelling man to discover nature's secrets and abide by them, if he is to advance his own welfare.

When, therefore, Professor Lowie,³ quoting Wissler, states that, "Environment furnishes the builders of cultural structures with brick and mortar, but does not furnish the architect's plans," he does not state the entire case. What he says is, no doubt, very largely true. We repeatedly state in this chapter that the level of man's knowledge and practical arts determines the extent and the ways in which he is able to utilize natural resources. But we must never lose sight of the profound truth that *all progress must be in harmony with nature*. We cannot build houses out of coal nor heat them with granite. If the architect's plans for civilization prove good it is because he has drawn them along lines laid down by nature. It is for the scientist to discover what these lines

³ Robert H. Lowie, *Culture and Ethnology*, D. C. McMurtrie, 1917, p. 64.

are. Once he has revealed them the engineer may apply them with confidence in drawing his plans for the utilization of nature's brick and mortar.

MAN A CHILD OF THE EARTH

Evolution of Man. Not only is the earth a stage but in a large way it has produced the human actors. Professor Henry F. Osborn ⁴ declares that man is a child of the sun, pointing out that the chemical elements of his body are the same as those found throughout our solar system. One may say that man is even more a child of the earth. Not only the chemical elements of his body, but all his physiological and psychological capacities and activities are adapted by processes of evolution to conditions on the face of the earth. These processes extend back through man to his ancestors, and on back through them to the very beginnings of living substances. At every stage in their marvelous course the earth conditions have guided, selected, and limited them. Man is thus by his organic nature qualified for life only under conditions such as they are found on our earth and to only a limited portion of these. His need for water is, of course, imperative; his health and vigor depend on a limited portion of the organic substances in nature and these must be in certain definite conditions. All but a small fraction of the human race live within a few hundred feet of the sea level. While man can adapt himself to wide ranges of temperature by altering his clothing and housing, he can build civilizations only within certain limits of heat and cold, wetness and dryness, and atmospheric pressure.

Adaptation of Races to Habitats. Different races of men, however, have been adapted by the long processes of mutation and selection to different habitats. There is good ground for believing, for example, that the Negro separated from other branches of the human family some hundreds of thousands of years ago. He therefore differs from the White race, as both of these differ from the Yellow, in color and texture of skin, in the color and structure of the hair, in eye color, in respiratory apparatus and in other less striking physiological ways,—many of which differences represent adaptations to differences in climatic conditions. Such differences in physical structure and physiological reactions result in adaptations of some races to hot climates and some to

⁴ Henry F. Osborn, *Origin and Evolution of Life*, Chas. Scribner's Sons, 1917.

cold, some to moist ones and some to dry ones, some to high and others to low altitudes, and some to a diet principally vegetable, and others to a diet principally animal.

Every different type of man thus has a more or less definite *range of climatic toleration*. His *climatic optimum* of temperature and moisture is fairly definite, so that the places on the globe where he will thrive, be healthy and ambitious, alert and energetic, are strictly limited. When Professor Ellsworth Huntington⁵ finds the optimum outdoors temperature for the white man to be 64° with a humidity of 80 per cent and the optimum for the Negro to be 68° with a somewhat higher humidity, he has not necessarily found the exact figures but he has pointed to a very profound anthropological fact. Such a view is at the basis of the science of anthropogeography, or the dependence of man on place and of culture on man and habitat. One of the most interesting illustrations is the demonstration that the nasal index, or the width of the nostrils, is associated with temperature and moisture. Thus races with very wide, flat nostrils are best adapted to warm, moist climates; those with high narrow noses to cold, dry climates; while intermediate types of nostril are associated with the cold moist or dry warm climates. Warm, moist air can and must be taken into the lungs in greatest volume; we feel slightly suffocated on a hot, moist day in summer. On the other hand, cold air must be warmed by the nasal passages before reaching the lungs. This is one reason why the Negro is not adapted to cold temperate climates and suffers heavily from tuberculosis, bronchitis, and pneumonia in our northern states.

CLIMATIC SELECTION AND STIMULATION

Climatic Selection. A. *A Factor in Racial Differentiation.* It must not be supposed, however, that climatic conditions cause racial differentiation. Climatic changes or differences do not seem to possess any power to cause a race to vary in certain directions; that is, there is as yet no evidence that mutational variations can be attributed to climatic changes as originating cause. Such changes do, however, *select* the variations after they occur. Thus the association between dark skin and hot climate is due to the ability of individuals of dark skin to withstand the effects of

⁵ *World Power and Evolution*, Yale Univ. Press, 1919, pp. 70 *et seq.*, and *Civilization and Climate*, Yale Univ. Press, 3d ed., 1924, pp. 161 *et seq.*

the sun's rays. A light-skinned race might, over a considerable period of time, be transformed into a dark-skinned one under torrid conditions, provided heritable variations or mutations in the direction of dark skin occurred among them. The biological reasons for such variations are still little understood, but, once they occur, their possessors are more likely to survive and to leave offspring to whom they transmit their advantageous trait. It seems almost necessary to assume that there was a time in human history when human heredity was subject to more or less frequent mutations, or heritable variations. Such variations would presumably occur in several directions, but only those which increased the survival power under the given environmental conditions would be perpetuated. Their possessors would leave more offspring, and in time the race as a whole would possess the advantageous traits. There would thus be a shifting of racial type under the combined action of heritable variations and environmental selection.

B. *Different Strains in Same Population.* There is, moreover, always going on in any population a selection by major elements of its climatic conditions. This selection operates both on the native population and on immigrants. There are many illustrations of the operation of climatic selection on the native population in the United States. Illustrations are seen in variations in deaths by months. At New York deaths swing through two maxima in March and July-August and two minima in June and November. In London there is a very high maximum in January and a secondary one in August, while the minima occur in June and October. At both extremes of temperature the less hardy are picked off. Such variations in deaths are obviously in part due to certain germs which flourish best at different seasons and which may through the progress of medical science be exterminated or brought under control. Until then, however, climatic selection will continue to operate through them, because individuals differ in their hereditary capacity to resist them. Bodily resistance to disease is also related to variation in the amount of sunlight, fresh air, exercise, kind of food, and general habits of life, all of which necessarily vary from season to season. Severe hot and cold spells are always accompanied by a rise in the death rate. This is notably true of infant mortality in summer. Not all such deaths, however, are selective, although there is un-

doubtedly a selective factor in them, much confused, especially in infant mortality, with other conditions. (Figure 22.)

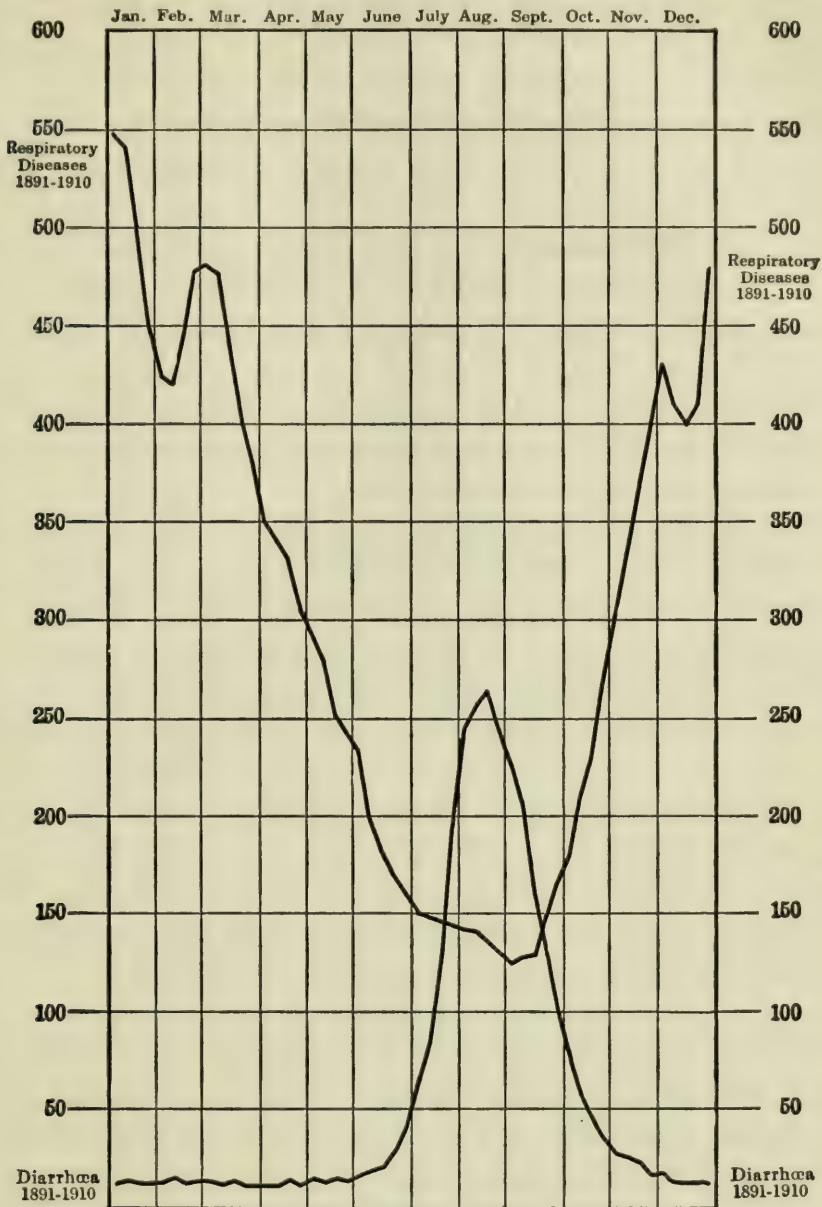


FIG. 22.—The average weekly deaths from diseases of the respiratory system for the twenty years, 1891-1910, and the average weekly deaths from diarrhoea for the same period, at London. The seasonal influences, though reversed, are striking. From Sir Arthur Newsholme, *Vital Statistics*, D. Appleton and Company, 1924, by permission.

C. Migrating Peoples. Much clearer is the operation of climatic selection in relation to migrating peoples. As indicated above, changes in rainfall may force people to seek a new habitat.

The great historical migrations from Asia into Europe two thousand years ago are believed to have been due to the gradual desiccation of the great plains of western Asia and eastern Europe. A similar hypothesis has been advanced as a partial explanation of the Saracen expansion at the time of Mohammed, and subsequently. In many of the historic migrations in Europe, the moving populations were subjected to a greatly intensified struggle for existence, partly due to the severe physical and mental strains of movement and readjustment, and partly due to the intensification of climatic selection under such conditions. It must often have happened in large movements of population, in consequence of war or climatic changes, that only the more hardy could survive and leave offspring. If the survivors of such movements find themselves in favorable habitats they have every chance of giving rise to strong and vigorous races.

As a general rule migrating peoples have moved to new habitats of rather similar climatic character. This indeed is the primary principle of successful colonization. Most of the great historical migrations have been from east to west or west to east. This is true of both Asiatic and European migration and colonization. The settlement of North America is an interesting illustration. The northwest European countries established settlements in the northern and central portions while Spain took possession further south. The immigration of the last century brought Swedes and Norwegians to the Dakotas, Minnesota, and New England, while Greeks and Italians more frequently went to the Middle States, the South, or southern California.

But there are also many instances of movements of peoples into habitats to which they were not adapted. One of the most frequent illustrations is the extreme difficulty of changing altitude. Races accustomed to lowland air pressures acclimate themselves to high altitudes slowly, and *vice versa*. There are a few races, such as certain Andean Indians and the Tibetans, which have become habituated to high altitudes and are capable of physical exertion there which seems to us remarkable in view of the rarified atmosphere. They cannot, however, descend to the lowlands without experiencing more or less physiological derangement.

Much more important historically are the north and south movements. During the past century or two the tropics have

exerted a powerful attractive influence upon Europeans, while slavery and forced labor has taken many natives of tropical countries into temperate climates. All such movements are highly selective.

D. *The American Negro*. Illustrations of such selection in its most vigorous forms are furnished by the high death rates of Negroes in temperate climates and of Whites in the tropics. Negroes seem to be especially susceptible to respiratory diseases wherever they live. They have relatively small lung capacity. At the same time they have thicker or denser skins and perspire less freely than Whites, so that a greater physiological burden is thrown upon their lungs. "They are consequently exceedingly sensitive to atmospheric changes, and are severely handicapped in any migration for this reason."⁶ The transfer of the Negro to the West Indies and the southern states did not involve any great climatic change and hence little physiological derangement. Their death rate in the South is high but probably not for climatic reasons. Their northward movement has, however, resulted in a very great mortality from tuberculosis and other respiratory diseases. At the same time the Negro excels the White man in resistance to measles, scarlet fever and other skin diseases, and cancer.

It is by no means certain that the Negro as a pure stock could establish himself in our northern cities. In any case, his death-rate has, up to the present, exceeded his birth rate in the northern states. He is, therefore, being subjected to vigorous climatic selection. At the same time account must be taken of the fact that the northern Negro has more white blood in his veins than the southern. It is not improbable that his climatic adjustment is facilitated thereby. In that case those strains having the larger proportions of white inheritance would, other things being equal, tend to be preserved at the expense of the purer Negroid strains. A certain amount of race substitution would thus accompany climatic selection.

E. *The White Man in the Tropics*. During the past two generations there has been a great deal of discussion of the question whether the white man could ever successfully colonize the tropics. It is quite certain that he has not yet succeeded in doing so. The outstanding features of the climate of the tropics are heat,

⁶ W. Z. Ripley, *The Races of Europe*, D. Appleton and Co., 1899, pp. 565-566.

humidity, and a deadly uniformity. The exceptions are found in the high altitudes where vegetation is scarce. Deserts are cool at night but not attractive to colonists. The only areas, therefore, that seem capable of sustaining great populations are the areas of high humidity and low altitude, areas where rainfall is abundant and vegetable life luxuriant, but where heat is oppressive and the evenness of temperature enervating to migrants from the temperate zones. It seems probable that the high humidity is the most difficult feature of tropical climate for man to combat, though the heat, the severity of the sun, especially the disintegrating effects of the actinic rays,⁷ and the unstimulating uniformity would all exact their toll of death, disease, listlessness, and lack of achievement.

Many comparisons show that the death rate of Whites in the tropics is extraordinarily high, especially from malaria, dysentery, and other diseases of the alimentary tract. Even if these are subject to control, the enervating effects of climatic maladjustment destroy courage and high purpose and lead to the adoption of lines of least resistance.⁸ After a careful survey of the evidence a generation ago Professor Ripley concluded that, "to urge the emigration of women, children, or of any save those in the most robust health to the tropics may not be to murder in the first degree, but it should be classed, to put it mildly, as incitement to it."⁹

Set over against such a conclusion is the remarkable success of the United States in protecting the lives of its employees on the Canal Zone and in reducing the death rates in Panama and Colon. These results indicate that the application of modern medicine and sanitation can increase enormously the life-span in the tropics. There are also many further advances to be made in the control of pestilential germs. Nothing in the near future, however, seems likely to overcome the demoralizing effects of humidity, heat, and uniformity of temperature on human purpose and energy. It must be remembered, moreover, that the Whites in the Canal Zone are selected persons of much more than average intelligence, and they are living under conditions which could hardly be established for a large colony of Whites settled in the

⁷ C. E. Woodruff, *The Effects of Tropical Light on White Men*, Rebman Co., 1905.

⁸ Ellsworth Huntington, *Civilization and Climate*, Chap. iii.

⁹ *The Races of Europe*, p. 586.

Amazon Valley or elsewhere as pioneers and tillers of the soil. Moreover, although the death rates at Panama and Colon have been reduced by one-half, they are still twice as high as for the United States as a whole.

Furthermore, there is some ground for supposing that the fertility of Whites is reduced by continued residence under tropical conditions, so that the creation of vigorous and growing colonies, able to develop the land and create an adapted culture, would require a constant stream of fresh migrants. The long British experience in India and the shorter experience of the United States in the Philippines does not favor the idea of white settlement of tropical countries.

An interesting illustration of the subtlety of the selective action of tropical conditions is the considerable body of evidence that in sub-tropical areas such as our own South, southern Europe, parts of Australia, and South America, blond strains tend to be displaced by brunet ones.¹⁰ This is not a cause of marvel since the climatic toleration of the blond types fits them less well for sub-tropical conditions. Such a phenomenon is of the same category as the high death rate of Italians in New York City from influenza and pneumonia.

The conclusion would seem to be inevitable that the settlement of the tropics by white men does not seem likely ever to compare with his extensive possession of temperate zone lands. The white races have gained their strongest foothold in tropical areas when they have formed hybrid populations with the natives, as in Mexico and the rest of Spanish America. It seems probable that the tropics will in the course of the present century become the scene of still further race hybridism. The native races of the tropical and sub-tropical areas often have declined rapidly when their cultures were disturbed by the rude and domineering intrusion of the white man. They hold their own best under genuinely tropical conditions.¹¹

Sources of Confusion. Climatic selection in any area undoubtedly tends to bring about an adaptation of physical and physiological traits of men to the dominating features of the climate in that area. In a broad way each distinctive area selects

¹⁰ George H. Pitt-Rivers, *The Clash of Culture and the Contact of Races*, London, George Routledge and Sons, 1927, pp. 107-108.

¹¹ For a full discussion see E. E. Muntz, *Race Contact*, The Century Co., 1927.

its human type and then tends to hold it by rendering it less fit for survival in other habitats. But it must be remembered that every race has a more or less wide range of climatic toleration. Moreover the selective process is slow, so that its effects are *often rendered quite confusing by the migration of peoples from one area to another.*

Then it is not always easy to draw a line between those physical differences of races due to heritable mutations and subsequent environmental selection and those due to special features of the environment but which are not inherited. Thus while the Negroes clearly have some adjustment to warm climates, the Andean Indians to high altitudes, and the Eskimos to the food and temperature of the arctic, such direct effects as tanning by the sun, increased stature due to lime in drinking water, or goitre due to absence of iodine in such water would not be inherited, and would tend to disappear with migration to a different area. Heritable adaptations, on the other hand, would be transferred by a race, if they moved to a new habitat. This would make extremely difficult the demonstration of any connection between heritable physical traits and habitat among races or peoples that had had a long residence in more than one type of environment.

The Negroes all seem to have lived under climatic conditions similar in one respect, namely, high temperature, and they are not, therefore, adapted to the colder sections of the temperate zones. At the same time there has been much movement among African tribes involving considerable changes of altitude, latitude, moisture, and temperature so that existing adaptations would be a confusion of effects of past and present habitats. The races of Europe and Asia have moved about much more extensively, though it is doubtless true that the Mediterranean and Baltic races have centered for many centuries around seas having the same names. In other words, there are doubtless cases of greater or less adaptation of populations to the distinguishing features of their climate, but in many other cases we do not know enough about the past racial history to draw more than tentative conclusions.

Such considerations apply with special force to the assumed psychical effects of climate and topography. Here are included all evidences of the special impresses made by either general or particular features of the environment on man's temperament, or

on his thought as reflected in religion, morals, or philosophy. Such effects are extremely difficult to determine, as their proponents agree.¹² The Negro's light temperament, easy good nature, and lack of foresight are sometimes pointed to as evidences of the psychic effects of a long race life in a warm climate where nature provides a ready subsistence. On the other hand, cold climate and a harsher habitat are associated with thrift, industry, greater self-control, and a sober seriousness. There can be little doubt that some such association exists, but it is still not clear how much of it is due to inborn traits and how much to the force of life's necessities and social tradition. In order to survive in the temperate zone a people would need to be more industrious, and hence more serious and more careful of the future than if living in many parts of the torrid zone. But it is often observed that Whites moving to the tropics shortly acquire the laziness and lack of ambition of the natives. Negroes in northern states are on the contrary generally more industrious, thrifty, and ambitious than their southern relatives. Such a difference may be due in part to the fact that the more energetic and ambitious Negroes move northward, but it appears also to be due in part to the more vigorous stimulus of northern climate and northern social opportunities and traditions. Such a case illustrates the difficulty of establishing any certain and direct connection between habitat and psychic traits, since climatic effects are commingled with the effects of racial selection and social milieu. Nevertheless, the fact that races seem pretty clearly to differ inherently in temperament and ability, plus the probability that such differences are due to mutations selected and preserved in part by the action of physical environment, points to the possibility of establishing some cases of direct psychological effects of an inheritable sort, when the history of races is clearer and the means of measuring racial psychic differences more refined.¹³

Similar considerations apply to what Miss Semple classes as indirect psychological effects. These are illustrated by special features of language due to local occupations, such as terms and phrases used by herdsmen, miners, and others. Thus she notes

¹² Ellen Semple, *Influences of Geographic Environment, On the Basis of Ratzel's Anthropo-Geography*, Henry Holt and Co., 1911.

¹³ See, however, S. D. Porteus and Marjorie E. Babcock, *Temperament and Race*, Richard G. Badger, 1926.

that the language of certain pastoral tribes is rich in words for designating the nuances of color of their animals. Any human activity related to the environment would furnish other illustrations. There are multitudes of such cases of indirect influences of the environment. In fact every culture is permeated with them. But it should be clearly recognized that the environment does not of itself produce such effects. They are primarily the effects of the stage of culture and only secondarily the effects of climate, soil, or the general aspects of nature. Once created they may, moreover, be transported to the uttermost parts of the earth. Thus the Palestine nomad, under the influence of his mode of life, declared, "The Lord is my shepherd," and the phrase has since encircled the globe.

Nor should one overlook this confusing effect of migratory movements when considering the influences of physical conditions on economic and social life.¹⁴ Natural resources undoubtedly exert a controlling, or limiting, influence over modes of making a living, especially in simple societies, on the territorial division of labor, trade routes, and the concentration of population, and thus affect also political and moral institutions.¹⁵ We shall see, however, that the physical environment is for the most part static; it sets limits, serves as a source of suggestions, and canalizes human activities, but it is in no way endowed with originating and creative power itself. Migrating peoples carry their traditions wherever they go, and continue to live by them with only such modification as new conditions make necessary. It is, therefore, not always easy to determine what elements of a culture represent special adaptations to a particular habitat and what have been imported.

These remarks apply also to the relation of human migrations to physical conditions. It is undoubtedly true that human migrations have moved along the natural channels suggested by the earth's topography. Men move in lines of least resistance, like most other objects in nature. Moreover, they have often moved because of climatic conditions, such as drought or flood.

¹⁴ For other illustrations, see J. Russell Smith, *Industrial and Commercial Geography*, Henry Holt and Co., new ed., 1925; G. G. Chisholm, *Handbook of Commercial Geography*, Longmans, Green and Co., 9th ed., 1922; and E. Huntington and S. W. Cushing, *Principles of Human Geography*, John Wiley and Co., 1922.

¹⁵ For the relation of geography to political conditions, see Isaiah Bowman, *The New World, Problems in Political Geography*, World Book Co., 1924.

But they have moved also for psycho-social reasons, such as the desire for labor or food, the search for gold, or to escape religious or political persecution. Moreover, when peoples have migrated in considerable numbers, as the New Englanders into the West, they have taken their culture, their language, religion, morals, political principles, and economic folk ways with them. Cultural traits are in this way readily diffused by migrations, and also by contacts of one people with another. It results that peoples of much the same general level of culture now living in similar habitats may have quite dissimilar institutions. Thus Professor Robert H. Lowie¹⁶ points to certain differences as well as certain similarities in the cultures of the Hopi and the Navajo Indians of Arizona, although their habitats are quite similar. Perhaps one might say that their similarities are largely, though not entirely, due to the similarities of habitat, while their differences are due in part to differences in their cultural history and contacts with other peoples. As we move up the scale of cultural evolution, it becomes clear that the economic and social life, while touching nature at many more points than among simpler peoples, is fundamentally a product of man's psychic capacities and cultural contacts and only indirectly a product of his habitat.

CLIMATE AND ENERGY

Energy and Achievement. There is an obvious connection between the physical and mental energies of a people and their cultural attainments. The development of a highly complex and dynamic civilization requires that multitudes of individuals shall have the capacity for sustained efforts at a high level during long periods of time. There are several factors which are necessary for the best results. Climate in its direct effects upon the human capacity for sustained effort is only one. There must be an abundance of food, but this is also dependent partly on climate, partly on human energy and intelligence, and partly on the state of the arts of agriculture. There must also be a stimulating cultural medium, so that individual ambition is stirred by the prospect of wealth and social distinction. Such a medium is possible only under limited climatic and physiographic conditions, for the necessary basis in material accumulation is possible only where nature, with human aid, provides an abundance of food

¹⁶ *Op. cit.*, pp. 50-51.

and raw materials. That such conditions are not narrow is, however, shown by the rise of the ancient civilizations in the warm and semi-desert areas watered by the Nile and the Tigris and Euphrates, and in the much colder and moister conditions of western Europe.

Tropics Unfavorable. The climatic optima of different races are different, so that each has certain advantages within its favorite climatic conditions. It is also undoubtedly true that tropical climates are less stimulating and sustaining than temperate. In spite of their special advantages in their native habitats, the tropical natives have not anywhere shown anything like the same intensity of activity as the white and yellow races under more temperate conditions. The only ancient civilization which arose in an area below the Tropic of Cancer was that of Egypt. It had the inestimable advantage of a combination of low humidity, cool nights, and natural irrigation through the annual overflow of the Nile. Moreover, its most lasting monuments were the product of the slave labor of a population living under degrading conditions. Even to this day slavery has continued to be one of the means whereby small numbers of persons have achieved wealth and power in the tropics. Even the exploitation of tropical areas by white imperialistic nations has not infrequently involved highly reprehensible systems of forced labor.

The difficulties of sustained effort in the tropics are stated as follows by an Australian physiologist: "I think most people who have worked in the tropical countries will agree that continued and concentrated mental work is much more difficult than in a temperate climate. One tires sooner. One finds that it is easy to get slack, one has to be frequently urging oneself to work. There is considerable mental inertia."¹⁷ Tropical conditions seem to exert a greater inhibition upon mental than upon physical effort, a fact that harmonizes with the finding of Huntington and others that the optimum temperature for mental work is lower than the optimum for physical labor.

The warm, moist areas of the torrid zone have never been associated with high cultures. Moreover, it is an historical fact that the advance of civilization has been associated with a persistent movement of the centers of civilization farther and farther

¹⁷ Ellsworth Huntington, *West of the Pacific*, Charles Scribner's Sons, 1925, pp. 349-350.

northward.¹⁸ Moreover, the early civilizations of Egypt, Peru, Yucatan, and Mexico were in relatively dry, though hot areas, and frequently at considerable altitudes, where the contrast of



FIG. 23.—These maps show how the Romans avoided the winter cold. Was this a cultural or a climatic limitation of their empire? What other reasons, geographical, racial, historical, or cultural, can you suggest for the location of the northern boundary? From James Fairgrieve, *Geography and World Power*, University of London Press, 1921.

night and day temperatures is considerable. This would seem to indicate that the debilitating heat and moisture of the torrid

¹⁸ S. C. Gilfillan, "The Coldward Course of Progress," *Pol. Sc. Quar.* 35, 1920, pp. 393-410.

zone lowlands serve as powerful deterrents to the ambition and creative energies necessary for the evolution of a high culture. It is very probable also that these areas are inhabited by races less well endowed than those living in higher latitudes and altitudes. (Figure 23.)

As man acquires an increasing power to utilize the earth's resources and to protect himself from the unfavorable effects of extreme cold he has found the stimulus of the cool, variable climates of the temperate zones most favorable to continued progress. One may add that climate likewise sets an undoubted limit to this northern movement, partly by making undue drafts upon human energy for mere warmth and bodily existence, and partly by the limitations it places upon food and other resources necessary for the maintenance of great populations carrying on complex, dynamic cultures.

The Optimum Combination. Such observations might be extended indefinitely. They support the contention of Professor Huntington that favorable climate is an essential factor in a high civilization.¹⁹ His colleague, Professor E. G. Dexter,²⁰ had shown that there are many interesting correlations between atmospheric conditions, temperature, barometric pressure, humidity, wind, cloudiness, and precipitation, and the number of arrests for assault and battery and drunkenness, the deportment of school children and inmates of the New York City Penitentiary, suicide rates, the errors of bank clerks, and the intellectual efficiency of Columbia University students. While his results need verification in certain details, he confirmed the observation that the weather affects the bodily metabolism and the ease with which reserve energy and mental concentration may be utilized. Weather conditions thus effect socially significant behavior.

Professor Huntington, following this lead, studied the relation of the output of factory workers to weather conditions. He compiled a considerable mass of data tending to show that health and energy, and hence capacity for work, both individual and collective, are closely related to climate, especially temperature and humidity. He was thus able to show that climate has an important bearing on physical and mental energy and resistance

¹⁹ *Civilization and Climate*, and numerous other books and articles.

²⁰ *Weather Influences. An Empirical Study of the Mental and Physiological Effects of Definite Meteorological Conditions*, The Macmillan Co., 1904.

to disease, and hence on morbidity and mortality rates. But a people with much sickness and a high death rate is obviously not in physical and mental condition for high cultural achievement. He was thus able to compile maps showing the close association of (1) climatic energy (by which he seems to mean human energy as affected by climate), (2) health, and (3) centers of civilization.

Analysis of the climatic conditions in all the great centers of civilization showed them to comprise three chief characteristics:

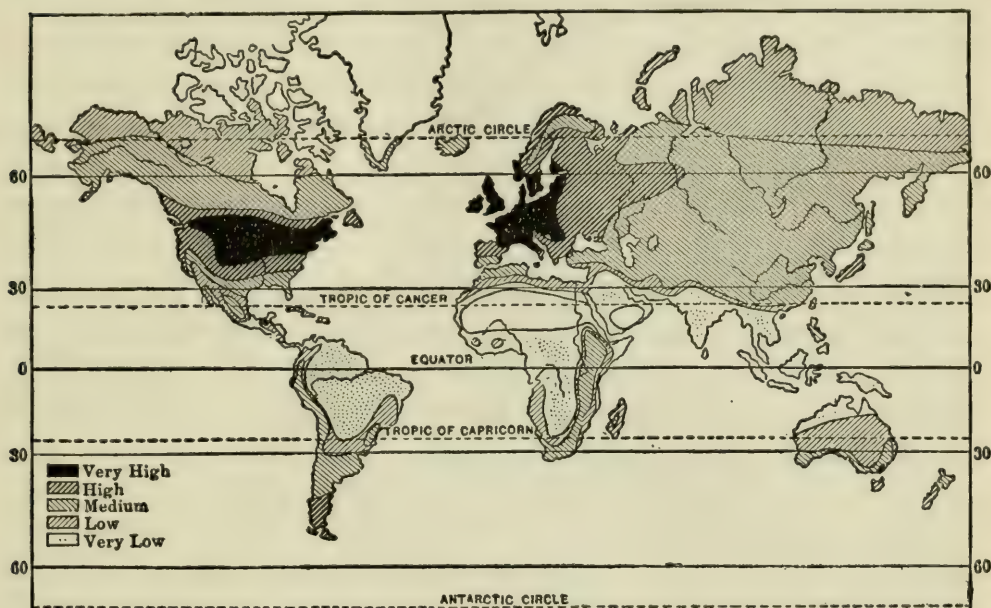


FIG. 24.—Map showing distribution of energy as affected by climatic factors, according to Huntington. This illustrates his theory that civilization is highest where climatic stimulation is highest. From *Civilization and Climate*, Yale University Press, 3d ed., 1924, by permission.

(1) “cool but not cold winters, as a mental stimulus, and warm but not hot summers, as a physical stimulus”; (2) “fairly high humidity except in warm weather”; and (3) “frequent changes of weather.”²¹ (Figure 24.)

That climatic conditions thus have a profound and enduring significance for human energy and hence for social achievement can scarcely be doubted. Nor does it seem probable that the limitations set by climate can be more than partially overcome by any foreseeable advances in medicine or in the practical arts. The tropics will no doubt some day be densely populated; but it is about as certain as human prophecy can be that they will

²¹ Huntington and Cushing, *op. cit.*, p. 254.

be populated by the descendants of existing natives with a mixture of white blood. Nor does it seem likely that the chief centers of civilization will ever be found outside the temperate zones.

THEORY OF CLIMATIC PULSATIONS

Nature of the Theory. This theory seeks first to show that there are waves or cycles of climatic change and then to connect these with historical events. It posits the existence of large cycles on which are imposed small ones and on these still smaller ones.²² Thus there are the great cycles represented by the Glacial Periods and Post-Glacial Epochs of many thousands of years, all of them connected with the secular change in the direction of the earth's axis with respect to the plane of the ecliptic.²³ These great secular climatic changes obviously exert an irresistible and thorough influence on social life. The present civilization of northern Europe and North America would be impossible in an Ice Age.

Much shorter pulsations would be illustrated by the slow but definite changes in the rainfall, such as seem to have occurred in western and central Asia and the eastern end of the Mediterranean Basin. With these Huntington seeks to connect the rise and fall of the ancient empires. While the matter is not proven beyond peradventure of doubt, Huntington seems to have demonstrated that Palestine and the valleys of the Tigris and Euphrates have to-day much less rainfall than they had 2,000 and more years ago. There seem to have been considerable and irregular fluctuations up and down. The loss of rain would decrease the supply of food and raw materials, intensify poverty, increase death rates, induce social turmoil, and compel migrations; and, if the loss of moisture went far enough, it would transform populous, flourishing areas into lifeless deserts. It is likely that some such change occurred also in southwestern United States, where the Indian cultures were much more flourishing some centuries ago than they have been recently.

Huntington also inclines to the view that there is a much shorter cycle of rainfall of thirty-six years, on which are still smaller ones of eight or ten years. Professor Henry L. Moore has cogently argued for the similar theory that there are cycles of rainfall,

²² Huntington, *Pulse of Asia*. Houghton Mifflin Co., 1907, pp. 366-367.

²³ Huntington, *Earth and Sun: An Hypothesis of Sun Spots and Weather*, Yale Univ. Press, 1923.

probably a large cycle of thirty-three years on which are imposed smaller cycles of about eight years.²⁴ Moore then shows that price movements and quantities of foods and raw materials affect manufacturing and business in such a way as to produce alternating periods of prosperity and depression.²⁵ Such a theory would connect the weather cycles with the sun spots (as did W. S. Jevons, an English economist, in 1873, and more recently Huntington, in his *Earth and Sun*) or with the movements of the planets. This would seem to require a greater regularity in the business cycle than actually occurs, but the potent astronomical phenomena may be more irregular than they now appear to the scientists, or the irregularity of the industrial ebb and flow may be due to the influence of other factors. There must be a close relation between weather and crops, and between crops and business, but the nature of the weather cycles and their economic importance is still undecided. Even the meteorologists are not agreed, as to the existence, to say nothing of the nature, of weather cycles.

There are still smaller cycles which are of tremendous importance in human affairs, such as the annual cycle of the seasons with which is associated an ebb and flow of every kind of human activity and vital phenomenon, from planting and harvesting to change of food and clothing, and from changes in sports and social life to changes in marriage, divorce, birth, and death rates. Then there is the daily cycle of darkness and light, which likewise regulates human customs in a myriad ways. It is an interesting reflection that, for hundreds of thousands of years and for billions of men, the rising and setting of the sun have dictated the order of life's daily routine.

Graphic Illustration. We need not accept all the speculations regarding these cycles to feel confident that there is a complicated rhythm in social life and historical process which finds its ultimate source in the rhythms of astronomical phenomena. The exact nature of the pulsatory movements is, in many respects, far from clear. There can, however, be no doubt that the larger ones are divided into smaller ones and these in turn into still smaller. The accompanying graph is merely suggestive. The longer curve A may represent such secular changes as those of the glacial phases;

²⁴ Henry L. Moore, *Economic Cycles: Their Law and Cause*, The Macmillan Co., 1914.

²⁵ Henry L. Moore, *Generating Economic Cycles*, The Macmillan Co., 1923.

B, changes which are related to the rise and decline of cultures, the exact nature of which is still unknown; C, brief economic cycles; D, the annual cycle of the seasons. Were it possible we would have added another to represent the rhythm of daily life. The time relations are obviously inexact.

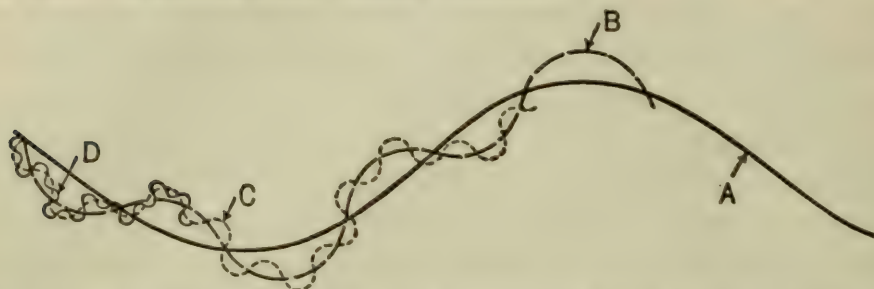


FIG. 25.—Drawing to visualize the manner in which climatic pulsations of varying length are superimposed on each other.

A Doubtful Illustration. In illustration of the importance of a long-time weather cycle, Huntington presents²⁶ the theory that the rise and decline of Rome are closely associated with a rise and decline of rainfall in the Mediterranean Basin. He seeks to demonstrate these changes in rainfall (1) by evidences of changes in the level of the Caspian Sea, (2) by evidences of the ancient prosperity of now desert and semi-desert areas of western Asia, and (3) especially by evidence derived from the annular rings of the big Sequoia trees of California. Assuming that the rainfall in any year is in proportion to the growth ring for that year, he is able from these trees to arrive at a picture of the course of the annual rainfall for the entire period since 1000 B. C. He then seeks to prove a similarity between the ups and downs of rainfall in California and in the Mediterranean Basin by comparing the figures for recent years; but the parallel is not very clear, as will be seen from the accompanying table giving the number of inches of rainfall in California cities and at Rome:

	SAN FRANCISCO AND LOS ANGELES	ROME
I. Average of 7 years of heaviest rainfall in California	8.3	10.7
II. Average of 18 years of heavy rainfall in California	4.5	10.6
III. Average of 17 years of light rainfall in California	3.4	9.8
IV. Average of 13 years of least rainfall in California	1.9	9.6

²⁶ *World Power and Evolution*, Chap. xi.

There appears to be some correlation here but one cannot be sure of it. We do not know whether the years of heavy rainfall in the two areas concurred or not. The differences between the averages at Rome are so small as to raise some doubt whether they indicate anything more than the random fluctuations which are always occurring from year to year. The author then tries to establish a parallelism between the rainfall as shown by the Sequoia trees, and the outstanding events of Roman History.

This illustration of the application of the geographical viewpoint brings out clearly the dangers of broad and far-reaching generalizations in historical interpretation. It is simplistic in that it neglects numerous other factors, a fact of which Huntington is aware. It is far-fetched in that it makes questionable assumptions. The student will find it a useful case study upon which to exercise his critical capacities. For example, do the above figures convince you that the variations in rainfall in California and at Rome are similar? Do we know that the variations in rainfall at Rome and elsewhere in the ancient world, are, and were, similar? Does it seem probable that such changes in rainfall as those shown above for Rome would seriously affect a high civilization? Would they produce civil war at Rome or the wars between Rome and Carthage? What other causes might be advanced to explain the rise and decline of Roman civilization? There is still much difference of opinion as to the extent and nature of climatic changes in southern Europe in classical times. Marion I. Newbigin, a special student of the Mediterranean areas, says²⁷ "There is, however, no definite evidence that the Mediterranean climate has changed notably in historic time." On the other hand, many authors support Huntington's view, and there is much ground for supposing that there was considerable dessication of western Asia in the later centuries of Rome. The student is doubtless aware that every type of sociological interpretation, geographical, eugenic, moralistic, political, and religious, has been applied to the rise and fall of Rome. It should be added that Professor Huntington, while making climatic conditions basic to the human epic in any time and place, also attributes very great importance to racial or population quality and to the contact of nation with nation.

²⁷ Marion I. Newbigin, *The Mediterranean Lands. An Introductory Study in Human and Historical Geography*, A. A. Knopf, 1924, p. 209.

THE INFLUENCE OF PHYSIOGRAPHIC FACTORS UPON
THE DENSITY OF POPULATION

Density Associated with High Culture. One of the universal accompaniments of a high civilization is density of population. The maintenance of a large body of people on a limited territory, as in the ancient empires, modern European countries, China, Japan, and India, is accompanied by an elaboration and differentiation of social organization and the development of complex processes of coöperation. These are both indications of and conditions for high social attainment. Not only is an economical and creative division of labor thus made possible, but every human interest receives the specialized attention of gifted individuals, so that the fine arts, literature, science, and philosophy flourish, to an extent impossible in sparsely peopled areas. One may see this clearly by contrasting sections of our own country, such as the thinly settled areas of the great plains, with the thickly populated farming communities of Iowa, Illinois, or central New York, and these latter in turn with great urbanized areas like New York, Philadelphia, or Chicago.

Density Dependent upon Potential Wealth. Back of a dense population, especially where the standard of life is high, is a territory rich in resources. As Professor F. H. Giddings ²⁸ points out, such a territory must be both rich and readily accessible. This does not mean that a rich and accessible territory will necessarily have a dense population, for, as we have seen, the territory is only a stage or setting on which the social group enacts the drama of its life. Density of population is only an accompaniment, a frequent but not necessary consequence, of the increasing power of a society to utilize its environing resources. This power in turn is dependent on the growth of knowledge. The growth of knowledge in turn results from a complex of social factors, of which the growth in wealth and contact with other peoples are two of the most important. Growth in wealth and knowledge thus react favorably on each other, so that a rich habitat supplies one of the primary conditions of its own increasing exploitation.

But when we inquire specifically into the relation between ter-

²⁸ F. H. Giddings, *Studies in the Theory of Human Society*, The Macmillan Co., 1922, p. 148.

ritory and growth of the wealth essential to population density and social evolution, we find that all that can be said is that the territory must have *potential* resources, which, in the given state of knowledge and the industrial arts, are capable of intensive exploitation. As a rule, the civilized areas have had that combination of sunshine, rainfall, and topography which have been favorable to abundant plant life. Such areas make possible the development of a great agricultural industry, and since an abundance of food is the first essential of a great population, these areas in turn become the basis of towns and cities in which the higher cultural pursuits are carried on. This was clearly true in the case of Athens and Rome, as it is to-day of Paris, Berlin, London, and New York, although these modern cities seem to depend much more than the ancient on world trade for their food and wealth. If, however, one contrasts the climatic conditions of such widely different areas as the ancient empires, Italy, England, and the west coast of the United States, he will see that the climatic conditions which provide possibilities of agricultural development and urban concentration of population are quite variable. It now seems probable that the valleys of the Tigris and Euphrates received a larger rainfall at the times of the Babylonian and Assyrian civilizations than they do to-day, but they were even then scantily watered, and irrigation was extensively practiced and undoubtedly essential to population maintenance. An even clearer case is that of Egypt, a land lacking in rainfall but endowed with a river whose annual overflow furnished the essential moisture. The pre-Columbian civilizations of Mexico and Peru also rested on irrigation.

It thus appears that the essential conditions are invigorating temperature, cultivable surface, and either adequate rainfall or the possibility of irrigation. The territory must be accessible so as to permit the ingress of migrants and those contacts of people with people which are an essential stimulus to group ambition and an essential condition for the diffusion of culture.

Such a territory attracts settlers, then invaders. Every increase in its wealth increases its magnetic attraction to other peoples, either for plunder or settlement. The great river valleys of the Orient, the valleys of the Po, the Danube, the Dnieper, the Rhone, the Rhine, the Thames, and the Seine, the fertile lowlands of western Europe, England, the United States, Canada,

and southeastern Australia, all serve as illustrations. Migrants to new and undeveloped areas are as a rule selected men and women of unusual energy and initiative, and thus qualified to be the progenitors of a vigorous people. The increasing diversity of population increases the supply of talent in varied lines, making possible a diversification of both practical and æsthetic activities. Migrants also bring new ideas and customs. In the case of the United States we note also that the immigrant stocks have from the beginning multiplied by natural increase at truly remarkable rates. Indeed, the American population up to the Civil War or a little later was one of the most fertile populations the world has ever known. There was an abundance of food, a vigorous life in the out-of-doors, and plenty of room for expansion.

The historical evolution of the culture in such colonized territory depends largely on the political and economic evolution of its neighbors, since no people rises much above the level of other peoples with whom they maintain an interchange of ideas and modes of living. The Mediterranean civilizations profited much from the mutual interchange of knowledge and the stimulus of trade and war. The more isolated civilizations of ancient Mexico and Peru remained less richly diversified in the variety of attainments, because they lacked contact and competition with highly progressive neighbors. Similarly, Japan and China developed highly colorful civilizations, but much less diversified than our own.

Factors Affecting Cultural Diversity. The diversity with which the arts and sciences are cultivated is dependent on four primary factors, (1) the territorial resources, (2) the inherent intellectual capacities of the population, (3) the stage of advancement of the practical arts, and (4) the extent and variety of the contacts with other peoples. The richness and accessibility of the territory directly affect the first and fourth of these factors. Thus, in the mountain coves of the Southern Appalachians and the Ozarks, there persists the culture of 1700, whereas in the neighboring river valleys there flourishes the culture of to-day. The diversified resources of the United States in coal, oil, iron, copper, zinc, sulphur, and other minerals, lumber, soil, rainfall, water power, rivers, lakes, and harbors set the stage for an unparalleled diversity of practical activities, profitable research, and initiative. Some of these natural resources are lacking in the more homogeneous environments of England, France, and Italy, which

are consequently largely or wholly dependent on the importation of the essentials of certain important industries. Thus the lack of coal, iron ore, and mineral oil in both France and Italy have deeply affected their industrial development, their positions in international trade, and their diplomatic policies.

Geographical Regions. As a result of differences in climate, altitude, topography, fertility of soil, and other natural wealth, the population of the earth is very unevenly scattered over its surface. Here and there, as in China, Japan, India, Java, parts of western Europe, and America there are areas of varying size populated by teeming millions. These are the areas of highest civilization, though vastly different in both the quality and the level of cultural achievements. They are also the areas which by the combined tests of climate, soil, mineral and timber resources, rivers, and harbors are best suited for human habitation. Surrounding them are areas more and more thinly settled as one moves outward toward deserts, mountains, and arctic wastes where dwell few or no individuals. The areas now congested may not always be so; and some areas now thinly settled may in the future teem with people. But the whole earth is now so fully peopled and approaching such economic unity, that only far-reaching physiographic changes or scientific discovery can substantially alter the general distribution of the world's population. It does not seem probable that sub-arctic areas will ever contain a truly dense population. Nor does it seem likely that the Whites will, without racial adulteration, populate the tropics. In this connection one of the most interesting problems of world politics is the question whether the Australians, who multiply slowly and have great difficulty in establishing themselves in that northern third which lies above the Tropic of Capricorn, will be able permanently to hold that continent in the face of the teeming and hungry millions of the near-by Orient. (Figure 26.)

The division of the earth into geographical provinces with vast differences in density of population is clearly revealed by a comparative study of maps showing the distribution of population, temperature, rainfall, and altitude. In the first place, it will be noted that most of the world's people live between parallels 20° and 40° , while nearly all of them live between parallels 20° and 50° . The only thickly settled areas outside these latter limits are Java, parts of India and southeastern Asia, and parts of

northwestern Europe. Java has rapidly increased in population during the last fifty years owing to European trade influences. Northwest Europe has a climate which is modified by low altitudes and contiguity of large bodies of water. All the densely populated areas have a considerable rainfall, making possible

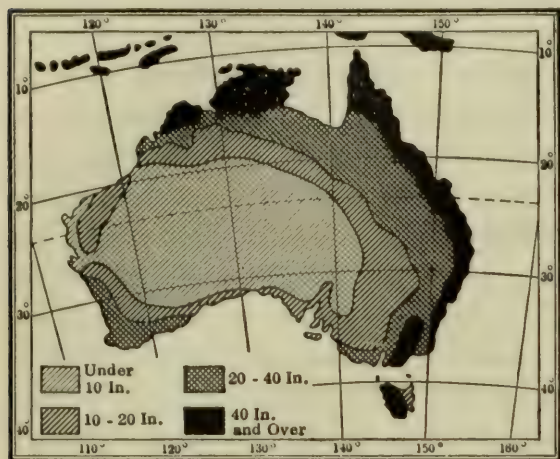


FIG. 26.—This map (after Diercke) of the distribution of rainfall in Australia, shows why that continent's population is concentrated in the southeast. Only the rim of the continent has adequate rainfall; the north is too hot for Europeans. Can they hold it to the exclusion of the hungry hordes of Asia?

abundant crops. The Amazon Valley is the only area on the globe having an abundant rainfall and a sparse population.

Moreover, the populous areas are nearly all of low altitude. Nearly the whole of the earth's inhabitants live within a few hundred feet of the sea level. The only exceptional spots are Switzerland, a few mining regions, and certain tropical places where high altitude creates conditions similar to temperate latitudes. The lowland areas are also those of greatest soil fertility. There is thus a striking correspondence between density of population and areas possessing low altitude, temperate to warm, but variable, climate, medium to abundant rainfall, and rich soil.²⁹

The earth is thus divisible into great geographical regions and these in turn into still smaller ones. To a very great extent each region has its own type of life. This uniqueness is due in part to the local climate, resources, and general aspects of nature which inevitably imbue all phases of culture. At the same time, these regional differences of culture tend in many respects to be mollified by the increased ease and rapidity of transportation and communication. We need hardly expect, however, that the social life of all men at all places on the globe will some day become sub-

²⁹ For any additional data, see Semple, *op. cit.*

stantially the same. Men cannot fish in the Sahara, raise cotton in Greenland, or dig coal out of the Amazon. However far the main outlines of occidental civilization may diffuse, there will still be differences in the density of population and associated therewith differences in the quality and the diversity of cultural activities.

THE INFLUENCE OF GEOGRAPHICAL CONDITIONS ON TRADE ROUTES AND THE SPREAD OF CULTURE

Location of Trade Routes Determined by Topography. As just indicated, a rich and accessible territory attracts migrants; it also attracts traders; and both of these deeply affect the diffusion of culture. In addition to the distribution of resources one may add that the character of the topography deeply affects the location and kind of trade routes. All over the world, regardless of the state of cultural advancement, whether trade is carried on by man power or beast, by wagon, boat, or railway train, it follows the lines of least resistance. Only great wealth, perfection of the means of transport, and an enormous volume of trade warrant the traversing of mountains and deserts. This is demonstrated by the footpaths of savages, the wagon trails of peasant peoples, and the canals and railways of more highly civilized populations. In consequence there is a tendency with the advance in wealth and population for trade routes to be transformed from trails to highways and then to canals and railways.

In this country a century ago an era of canal building was undertaken to connect the Atlantic seaboard with the developing communities west of the Alleghenies. These canals reached westward along the valleys of the Hudson and Mohawk, the Delaware, the Susquehanna, and the James rivers. In the next generation railways were built along these same routes. Similarly, in the continuance of westward expansion, the trade routes of the middle west and the far west steadily changed their character without much change of location. It is largely for topographical reasons also that great cities have grown up at the mouths or junctions of rivers, at the heads of great harbors, or in the centers of rich valleys. Early trading posts, located at the sites which surface configurations indicated, grew into modern metropolitan centers. In fact, one can show that every phase of American

history, as indeed of the history of other times and places, is permeated with a geographical element.³⁰

Migration of People along Natural Routes. Just as trade routes follow lines of least resistance, so one may say, in a broad way, that population tends to flow from areas of high to areas of low pressure and to do so along channels of least resistance. They



FIG. 27.—Sketch map to illustrate the strategic location of a great city, and why it was that the settlement of the west, the Erie Canal, and the New York Central and other railways passed through the Mohawk Valley. Compare the ease of access to the Great Lakes by way of New York and by way of the St. Lawrence River. (After Fairgrieve.)

thus move along coastal plains and river valleys rather than over mountains and through deserts. We have seen that topographical conditions thus become important factors in the original differentiation of races and in the preservation of racial and national distinctions. Professor Teggart³¹ has shown that the great basin now populated by the Chinese was subject to wave after wave of migrations moving eastward from the upland areas

³⁰ Ellen C. Semple, *American History and Its Geographical Basis*, 1903; also A. P. Brigham, *Geographic Influences in American History*, Ginn & Co., 1903, and James Fairgrieve, *Geography and World Power*, 2d ed., University of London Press, 1921.

³¹ F. J. Teggart, *The Processes of History*, Yale University Press, 1918.

down into the river valleys. The movement of the Aryan-speaking people into India, and of the shepherd kings into Egypt, the Achæans into Greece, and the barbarian invasions of western Europe in the later centuries of the Roman empire, are all illustrations of momentous historic migrations of vigorous, relatively uncultivated peoples into rich and accessible areas of higher cultural development. In all such cases the course of movement is largely dictated by surface topography.

Illustrations of the guiding influence of the earth's surface on migratory populations may be found also in the settlement of America. The early settlements first crept up the valleys of the Atlantic coastal plain; then across the Appalachian highlands by the natural routes already mentioned; they spread westward, along the Lakes, down the Ohio, the Tennessee and the Cumberland rivers, and up the tributary valleys. (Figure 27.)

Diffusion of Culture. *A. Nature's Highways as Channels for Trade, People, and Culture.* The two most important conditions for the diffusion of culture are the trade routes and the migrations of peoples just mentioned. Archæological research indicates that the Neolithic culture spread into western Europe, first around the Mediterranean and up the Atlantic coast, and then inland by means of the river valleys. The valley of the Danube was an important avenue for the spread of Bronze culture from the east into central and western Europe. That great stream of civilization to which our own belongs arose in the Ancient East and swept around the eastern end of the Mediterranean into southern Europe and thence into western Europe. It was very largely directed and controlled in its movement by the location of mountains and deserts and the fact that the Mediterranean is virtually an inland sea of modest dimensions. A little later the Commercial Revolution, setting up new trade routes connecting southern and western Europe, left Spain isolated behind the wall of the Pyrenees. This is one of the reasons why she remained immersed in the superstitions, illusions, and romance of the fifteenth century. The discovery of America by Columbus, which was largely aided by the trade winds and was the initial step in the spread of European culture to North and South America, was in part a consequence of the juxtaposition of western Europe and the American hemisphere. Had it not been for the deserts and dessicated uplands of central Asia it seems highly probable that the ancient empires

of western Asia would have established connections with the great civilizations of India and China, with the result that each would have fertilized the other by fresh invasions. In that case the path of empire would have moved eastward and Asia rather than Europe would have become the chief center of recent cultural advancement. A slight change in Eur-Asian topography would have left Europe isolated and barbaric.

It thus appears that trade routes are determined by the natural configuration of the earth's surface. Trade routes evolve into lines of transportation and communication. Transportation and communication destroy at one and the same time both geographical and cultural isolation. Trade and commerce, people, and cultural diffusion thus tend to flow along similar routes.

Just as the trade routes and the lines of westward settlement of the American people were largely controlled by topographical conditions, so also was the diffusion of important elements of American culture. The overflow of the New England population moving westward through the Mohawk Valley and along the Great Lakes carried New England Congregationalism and Puritan ideals in morals and politics throughout the north central states and later even to Oregon and Washington. It was this same migration that made the Northwestern Territory free rather than slave; it likewise brought on the border warfare in Kansas in the late 1850's, and since then has been responsible to a very large degree for the religious life, moral codes, legislation, and social customs of the upper Mississippi Valley.

B. *Utilization of Resources Altered by Cultural Diffusion.* The most striking feature of such movements, however, for the present discussion, is the manner in which they change almost the whole relation of man to nature. The replacement of Indian culture by the European changed almost *in toto* the utilization of natural resources. The buffalo, for example, which had furnished the primary subsistence for a number of Indian tribes, was all but annihilated. The prairie grass, that had nourished the buffalo, was turned under and made to grow all sorts of grains, grasses, and fruits. In other areas the resources of forest, stream, lake, mine, and quarry were put to a great variety of uses. Nothing could reveal more strikingly how the relation of man to nature is based upon the state of his knowledge and technical arts. At the same time, it will be observed that there is a well-defined

geographical division of labor or industry, each section of the country tending to produce those things for which it is particularly fitted by nature.

C. *The World's Trend Toward Economic Unity.* In this connection it should be pointed out that the development of world trade, by destroying geographical isolation, renders every community susceptible to influences affecting trade and industry in all other parts of the world. The discovery of petroleum in Pennsylvania destroyed the whaling industry of New England. The expansion of sugar growing in Germany affects the prosperity of Cuba, Louisiana, Colorado, and Hawaii, as well as the business of sugar refining all over the world. The growth of cotton in Egypt and India affects the southern farmer. The manufacture of aniline dyes in Germany reduces the cultivation of indigo in India. Even the spread of religion may affect the exploitation of natural resources; Catholicism affects the fishing industry. Germany adopted the principles of the American protective tariff and this in turn adversely affected the pork and beef industries of our own middle west. Thus, the geographical factor in social life does not stand alone. It is always present, but its importance may be very slight, especially in the explanation of dynamic social changes. The diffusion of culture, especially the world-wide reach of capitalist economics, is rapidly producing a condition of interdependence among all the peoples of the earth.

PRIMITIVE AND ADVANCED PEOPLES CONTRASTED

Primitive Man Close to Nature. It was long ago recognized that the geographical factors exert a larger proportionate influence on the life of primitive, than on that of advanced peoples. In the case of very low savages such as the Australian aborigines or the Veddahs, the adjustment to environment is direct, simple, and close. Dr. Goldenweiser, speaking of the importance of nature in the life of the savage, says: ³² "A primitive group lives in close communion with nature. Here every breath of communal life, in its matter-of-fact aspect and in its supernaturalism and ceremonialism as well, is dominated by natural rhythms and adjustments. Such adjustment to the physical environment constitutes a genuine and vital problem in every primitive group,

³² A. A. Goldenweiser, *Early Civilization*, A. A. Knopf, 1922, pp. 404-405.

and no stability is reached until it is achieved. After this there is very little incentive for change in the economic and industrial life." The dependence of the individual and the social group upon major features of the habitat is very great and their control over and utilization of the resources of the environment are relatively limited. Such peoples consequently have little ability to cope with changes in their environment or with the irregular manifestations of nature's power in storms, cyclones, and earthquakes. Subsistence is gleaned from nature with practically no effort at cultivation, so that the ups and downs of social life synchronize fairly closely with the rhythms of nature. Under these circumstances primitive men conceive nature as mystical, as full of spiritual beings upon whose idiosyncracies their welfare depends.

Civilized Man's Contact with Nature Less Direct but Broader. Advanced societies, on the other hand, are characterized by contact with nature at many points. The American people, for example, utilize the resources of timber, coal, oil, minerals, water power, and soil much more extensively and in many more ways than did the Indians. On the other hand, an advanced community, by virtue of its more diversified utilization of natural resources, touches nature more indirectly, although its dependence in the last analysis is equally great. It builds up such a diversified contact with nature that it becomes less susceptible to violent upset because of variations in any one aspect of its physiographic relations. Its grip on its habitat is firmer, broader, and deeper. Taken in totality, however, its dependence on nature for food, clothing, and comfort is as complete as that of a more primitive society. Thus a drought may cause considerable distress in certain sections of this country, but these effects may be partially mitigated by importations from other areas and the movement of population from the affected areas.

While the Iroquois Indians heated their tepees with wood from the neighboring hills, the inhabitant of a New York flat is kept warm by coal from the mines of Pennsylvania, or oil from Kansas or Texas. The New Yorker's dependence, however, on nature's resources is as absolute as that of the Indian. A sudden exhaustion or termination of the supply of coal, for example, would plunge many millions of people in the northern states of the United States into unemployment and misery. Both poverty

and death would greatly increase. A series of bad seasons for the farmers would increase food prices in New York and decrease employment; misery would increase and death rates rise. Such communities, however, with the resources of modern science at their disposal, and with many contacts with the entire world, are a thousand times more likely than their savage prototypes to find substitutes for exhausted resources of their habitat and numerous means of mitigating the effects of nature's tantrums.

The Engineer as the Advance Agent of Material Culture. As already indicated, one of the primary keys to civilization is the conquest of the limitations of nature or the increased utilization of nature's resources. We have seen that the earliest civilizations arose in areas where irrigation was readily practiced. Since a steady command of large resources of food and raw materials is essential for civilization, it would seem that an irrigated area is one most easily brought under firm and reliable control by a people not highly advanced in scientific knowledge. The engineer who applies science to the mastery of nature for practical purposes becomes the primary promoter of civilization. He not only builds highways, canals, bridges, railways, and ships, but he organizes the mining and manufacturing industries whereby raw materials are elaborated into an ever-increasing variety of goods; and he organizes the power-developing agencies—water, steam, and electricity—which place at man's disposal millions of horse power for the relief of human drudgery and the creation of ease and luxury.

Stages in Man's Relations to Nature. We may say that the utilization of environment by primitive peoples was at the very first purely *naturalistic*; it was the *direct appropriation* of what nature supplied. In this stage there was no purposeful effort to increase environmental resources. The beginnings of the next stage, or *conscious cultivation*, would be typified by the planting of seeds and the domestication of animals. It would be illustrated at a low level by the activities of the primitive husbandmen and herdsmen, and at higher levels and in different forms and degrees by the Africans, the Indians, and peasants and farmers in all parts of the world. This stage culminates in a third which we may call *telic exploitation*. It is characterized by the purposeful application of the results of organized research to every aspect of economic activity, *in the light of sufficient knowledge so that*

ends may be foreseen. Such a stage has been entered by the peoples of Europe and America, but it is far from completed. It is illustrated by soil analysis, the use of specific fertilizers for different crops, and in general by the whole field of industrial chemistry. One of its most typical traits is the devotion of much of the best talent and huge sums of money to scientific research and experiment. New scientific discoveries point the way to new economies and new sources of wealth, so that the capital expended in more thoroughly understanding nature pays handsome dividends. Telic exploitation would seem to be an unending process. It cannot be completed until man has achieved such a mastery of nature as would make further steps in material progress impossible. It cannot be fully attained until a society is able to foresee more or less accurately the effect of present utilization of earth resources upon the life of succeeding generations. This would require a far-seeing policy of conservation. That this is far from realized is plain when it is remembered (1) that conditions on the earth itself are undergoing slow secular changes which may not be foreseen, or if so, may not be subject to human control, and (2) that every great scientific advance alters man's capacity to utilize natural resources.

This gradation of stages is only suggestive, because the differences between them are relative rather than absolute. No doubt there are some research and experimentation at the very earliest stage, but it was the haphazard trial and error expression of the instinct of curiosity rather than the systematic and controlled search for new knowledge which we see in modern science. On the other hand, the direct, uncultivated appropriation of nature's products may still be observed among us even as at the beginnings of human history, in the gathering of herbs and wild fruits and nuts. Moreover, primitive man was only more trammelled by tradition than are we. While the paleolithic hunter and fisherman displayed a remarkable ingenuity and resourcefulness, the American farmer, though he may in some respects utilize the latest results of research in soil analysis, animal breeding, fertilizers, and mechanical and electrical power, is often steeped in traditional agricultural lore and like his paleolithic ancestor prefers the ways that his father taught him were customary.

These stages thus shade into each other and overlap. Elements of the first persist through to the last, but their importance

diminishes. Since all three stages may be and have been passed through in the same habitat, we may be quite certain that great changes in civilization may occur in a given area without an alteration in the natural environment, except those produced by man himself. Even the most favorable geographical situation cannot produce a high civilization; it can only furnish a more convenient stage and more abundant stage properties. Rich habitats have often supported thin populations in a low state of comfort. The habitat itself is thus powerless to effect the transition of culture from appropriation to telic exploitation. Such transition depends solely on the advance in knowledge. Nevertheless, high civilizations (1) have always arisen within limited climatic and physiographic conditions, and (2) have always borne the deep imprints of them. We may say, therefore, that there is a constant interaction between the habitat and the cultural development taking place therein.

But no people has yet fully exploited its habitat. The new physics and chemistry seem to indicate that the resources of nature are in many fundamental respects inexhaustible, so far as human utilization is concerned. One cannot even imagine the full effects of the far-sighted and complete application of the results of further scientific research to all phases of society's relations with nature. If, in the end, through a knowledge of the methods of transmuting the elements one into another, and the development of a highly perfected synthetic chemistry, science should teach man how to manufacture his foods in the laboratory and how to create substitutes for many of the most essential plant and animal materials, our present dependence on sunshine, rainfall, and soil would be substantially altered.³³ Man would then have moved far from the stage where he meekly, and with fear and trembling at the mysteries surrounding nature's processes, took what nature gave him, and he would approach the stage where he can make nature give him what he wants.

But even when the uttermost reaches of human knowledge have been attained and we assume the highly improbable state when man shall have unlocked the last secret of nature and confronts her with the perfect confidence born of this understanding, he will still find himself limited by the potentialities of his earthly

³³ For a brilliant look into the future, see J. B. S. Haldane, *Dædalus, or Science and the Future*, E. P. Dutton and Co., 1924.

habitat. He can alter neither the position of the earth and sun and the cyclical changes therein involved, nor the nature of that primordial matter and energy from which all physico-chemical processes spring. In the end his culture will be of the earth earthy, and man will find himself just as at the beginning, though on an entirely different plane, merely appropriating what nature gives him. Nature will thus continue to set the stage for the human epic; but we may say that every great advance in scientific knowledge compels nature to bring on new pieces of property. It is man and man alone who produces culture. He is the dynamic agent, he alone of all the creatures of earth is endowed with that intellectual capacity which makes possible the discovery and utilization of the secrets of nature.

SUMMARY

This chapter opened with the idea that the earth is a grand stage upon which mankind has played and is playing the drama of its social history. The earth furnishes not only a setting but numerous hidden, as well as obvious, pieces of property and more or less mysterious forces, which constitute important parts of the stage apparatus and contain many potentialities not envisaged in the earlier scenes. Those parts of the stage setting and properties which approach closest to astronomical phenomena are unalterable, while others are more or less modifiable by the actors themselves. Such alteration depends upon the state of knowledge and the technical arts, and its extent constitutes the principal difference in the material basis of social life at different times and places.

Considerable space was given to climate because in last analysis climate comprises not only heat, moisture, and variability of temperature, but altitude, quality of soil, nature and extent of potential plant and animal life, and the possibility of sustained and energetic labor. Of all the features of climate, humidity seems to be the most important. While climate exerts a selective action on all those subject to it, such action affects racial quality rather slowly. The correlations between the traits of any people and their climate are thus very difficult to establish because of the extensive migration of peoples from one habitat to another. This remark applies particularly to psychic traits, which are also affected by the cultural medium.

Temperament, for example, differs markedly from race to race. Some of this difference is doubtless due to the selective action of habitat. The temperament of the Negro in New York City as shown by his music, poetry, and art differs strikingly from that of his Italian and German fellow citizens. At the same time his temperament seems to differ also from that of his colored confrères of the South. It thus becomes difficult to make broad and true generalizations regarding the relation of racial mental traits to climate.

There can be no doubt, however, regarding the relation of climate to human energy and capacity for achievement. Civilizations have moved northward as well as westward during the last 6,000 years. It would seem that, as man acquires greater control over low temperatures by means of better food, clothing, and heating appliances, he finds the invigorating effects of a colder and more changeable climate favorable to strenuous effort. In such a climate activity and achievement come to be valued somewhat for their own sake and as promoters of personal health and happiness.

It is because of its great importance for health and vigor that climate is a factor in civilization. For a like reason climatic pulsations, or sweeping changes in climatic conditions, would necessitate important cultural changes. How important and in just what respects is by no means clear. Such phenomena as the rise and decline of a civilization are so complex that the relative importance of climate, other physiographic conditions, racial quality, and cultural contacts cannot be determined with satisfaction.

Much simpler by far is the influence of geographical conditions on the paths of trade, migration, and cultural diffusion, and on local customs and ways of making a living. These are influences which are obvious at every state of cultural advance. To-day, when the world is rapidly becoming one vast economic unit, it is so divided into natural geographical provinces that local economic independence is lost and each area becomes dependent on many others even for articles of daily consumption. The physiographic differences tend more and more to become the basis for a geographic division of labor.

It has been said that "nature made man, and man made culture." This can be so interpreted as to be true, for man sprang

from the earth, and he alone has produced culture. He alone is the dynamic agent in the creation of civilization. But he does not produce culture in a vacuum. He produces it in a given habitat and it is always permeated with the influences of its material base. Professor Lowie asks whether the geographical environment determines culture or whether culture determines the forms, manners, and extent of utilizing the environment. He decides in favor of the latter.³⁴

But we are not required by the logic of the matter to choose one alternative and wholly exclude the other. The fact is that the state of knowledge and the practical arts does determine the extent to which natural resources may be utilized, but it is also true that such utilization is always in harmony with the laws of nature or the nature of things. Science is merely the unraveling of nature's secrets in order that man may live more in harmony therewith. This is as true of such simple things as the growing of crops as of the more complex things, such as aeronautics or the new television. Moreover, one may say, at least in theory, that just as the earth produced man it may some time in the dim distant future take him back again into her spacious bosom.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. Explain the trade winds, the counter trade winds, and the ocean currents, and discuss their sociological significance.
2. Is bodily metabolism affected by change of the seasons?
3. Give illustrations of seasonal variations in social phenomena.
4. Is the cultural backwardness of tropical peoples a sure sign of their inherent mental inferiority?
5. It is said that the northern Negro is more ambitious and less light-hearted than the southern. Assess the relative importance of (1) climate, (2) cultural medium, and (3) race mixture in explaining such differences.
6. Would the same climate affect different cultures in the same way?
7. Give examples of cultural isolation due to topographical conditions. Also, of cultural diffusion.
8. Study a map of American railways for evidences of topographical factors in trade and transportation.
9. Can you discover any relation between habitat and morality?
10. Would it be correct to say that features of the physical environment suggest cultural advances?
11. Would you agree that the spread of the horse culture among the Indians shows that the physical environment has a *creative* influence on culture?

³⁴ R. H. Lowie, *op. cit.*, Chap. iii.

12. Compare climatic changes as reported by the Weather Bureau and the morbidity and mortality rates of your community.
13. Lowie says: "Environment cannot explain culture because the identical environment is consistent with distinct cultures." Does this leave no place for geographical factors?
14. What was Buckle's theory of the relation of physiographic conditions to civilization?
15. Is conservation of natural resources necessary?

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CHAPTER VI

THE BIOLOGICAL FACTORS IN SOCIAL LIFE: VARIATION AND HEREDITY

Introductory. We have seen that evolution in its universal aspects includes in one grand series solar systems, suns, and planets, chemical structures, living things, mental powers, and social institutions. We have connected man with this cosmic view by showing that he has evolved from anthropoid forms and that this evolution has been in harmony with and in adaptation to conditions on our earth. This organic evolution which is merely one great phase of cosmic evolution has taken place in obedience to biological processes which we shall now state more concretely. The evolutionary view does not require that life shall have originated at only one place and time, but it does require us to believe that living things have always been subject to the same general processes throughout the whole period of millions of years since life began. The regularity and uniformity of nature is not merely of to-day but of yesterday and to-morrow as well. Those processes which could have produced the whole marvelous series of plant and animal forms from the most rudimentary beginnings of life must have considerable significance for man and society also, for man is as much subject to them as any other living creature. He may, through the progress of knowledge, learn how to modify their operation so far as he is concerned. We may hope that he will some day learn how to utilize them to eliminate hereditary defects and weaknesses and create a stronger, more intelligent, more noble race. But however much he learns to utilize these processes he can never hope to escape them.

Factors in Organic Evolution. Two of the best known factors in organic evolution are *heredity* and *variation*. Both of these are matters of common observation and their general meaning is readily understood. Heredity is loosely and untechnically defined as the tendency of like to produce like, or of every variety of plants and animals to produce offspring after its own kind. We

shall see later that the rules of inheritance also account for differences of offspring from parents. Variation indicates the tendency of every living thing to be more or less unique. Offspring are not exact duplicates of their parents nor of each other. Even the leaves of the same tree differ one from another, though often only minutely.

Another essential factor in organic evolution is *excess fecundity*. All plants and animals have a potential capacity to multiply faster than their means of subsistence. From this arises a *struggle for existence* which affects every living thing from amœba to man. Wherever life is found there is found also a scarcity of some essential element for the continued existence of all those born. This scarcity may be that of space, moisture, sunlight, air, food, or the higher means of satisfaction. But it is as universal as life itself. There results what Darwin called *natural selection*, or the elimination of the ill-adapted and the preservation of the better adapted. Since these latter in turn become parents and pass on their advantages through heredity to their offspring, every species tends to become adapted to its own essential conditions of life. *Adaptation* is the end of the five preceding processes.

By these varied processes there is achieved the endless variety in nature and the marvelous adaptation of every form of life to its habitat. These various processes work together so as to give a mechanical explanation of the intricate and fascinating system of animate nature. We may now treat them in brief detail in their general aspects before taking up their applications to man and society. For the beginner their treatment is always difficult because modern theories of heredity cannot be fully understood until something is known regarding variation; but, on the other hand, variation is not clear until one understands something of heredity.

VARIATION

Kinds of Variation. The biologist classifies variations as *Somatic* or *Germinal*. The former are the effects of environmental conditions on the bodily structure, such as modifications due to differences in food, temperature, moisture, or mode of life. Such variations tend to distribute themselves in the regular statistical manner represented by what is called the normal curve of distribution or the curve of error, as illustrated above, p. 132. They

are thus usually small and are often also called continuous, normal, or indefinitely fluctuating. They are, however, sometimes large, as when a given plant will have white flowers in a warm temperature but red ones in a cool temperature. These modifications are also called acquired characters and they are not passed on to offspring by inheritance.

Germinal modifications are of two kinds, called *combinations* and *mutations*. The combinations are due to the variety of ways in which the genetic factors contained in the germ cells of the same two parents combine under conditions of sexual reproduction. The geneticist finds that these factors are reshuffled for each individual, much as the cards of a deck are shuffled for each deal, so that from the same genetic basis a great many individuals may come. It is for this reason that the offspring of the same parents differ one from another. In a given brother-sister group there are often several shades of eye color and hair color, considerable differences of stature, weight, and body build, and variations in intelligence and temperament. In the same way the members of a race or variety show varying combinations of the same complex group of hereditary factors. Such variations, being due to the recombination of existing factors, are also, as a rule, continuous, normal, or fluctuating, and may be statistically represented by a curve of normal distribution.

Mutations are variations due to the appearance or release of *new* factors in the germinal constitution. They are new traits and are not due to any combination of previous germinal factors. They are illustrated by the appearance of blond hair in a brown-haired stock. Evolution of new varieties and species can take place solely on the basis of mutations. They are often very small and they have often occurred successively in the same direction, so as to produce an increasing separation from the ancestral type. They constitute a very special class of heritable modifications. The factors whose reassortment produces the variations called combinations are also inherited but in an unmodified form. In the mutation one or more factors themselves are modified and express themselves in new bodily traits. In this way new varieties and species are formed. The distinctive hereditary racial differences are most of them mutations from some proto-human and pre-human type. The Negro's thick lips and kinky or woolly hair, the Nordics blue eyes and blond, wavy hair are examples of

extreme mutations from the human proto-type which were probably reached through a series of intermediate mutations.

The causes of mutations are not known. Extensive research seems to indicate that they are not due to environment. They occur in some members of a species but not in others living in the same carefully controlled environment. The chromosomes are composed of complex protein substances which may be conceived to be somewhat unstable in those species in which mutations are occurring. A mutation must involve a change of a physico-chemical sort in the chromosome, the minute carrier of the genetic factors. It seems highly probable, therefore, that the immediate causes of mutations must be sought in the internal conditions of the germ cells themselves. Their ultimate causes would seem to lie in nutritional or other physiological relations able to set up physico-chemical changes in the germinal tissues. It is known that radium emanations and X-rays are injurious to chromatin (that portion of the nucleus which is easily stained); and there is some experimental evidence that hereditary defects may be produced in simpler organisms, notably sea-urchins and frogs, by alcohol and other agents which may act directly on the germ cells. The significance of this evidence for human variations is by no means clear. Thus far no mutations have been experimentally produced in any creature which were improvements, defects only have been induced.

A germinal modification, that is, a combination or a mutation, may affect an individual in his (1) bodily structure, (2) physiological function, or (3) mental behavior. As a rule a variation which affects bodily structure will also affect physiological function; it may also affect mental behavior. Thus the repeated alcoholization of a guinea pig or a man will produce somatic modifications which affect the bodily structure, physiological function, and behavior. Likewise mutations may occur which affect individuals in one, two, or all three ways. The animal breeder seeks the best combination of hereditary variations in all three aspects; and the eugenicist dreams of creating a superior race by similar methods.

The Infinite Variability of Man. Like all other living things men differ one from another. Not only are there great races with numerous sub-races, which have become differentiated by the operation of mutation and selection, but each of the latter reveals a surprising variability. Even in a small group of persons

of like race the combinational variations are multitudinous. This affects even the most minute features of bodily structure and mental trait. So infinite are the possible variations of shape and size of head, chin, mouth, nose and ears, and eye, hair, and skin color that no two persons among the millions born in the same country have more than a general resemblance to each other. All Nordics, for example, are racially akin, but each is individual. Even the little whorls of elevations and depressions of the skin found on the thumbs are so distinctive that millions of thumb prints become absolute and indisputable marks of personal identification. In addition there are the numerous differences in physical trait and mental habit representing acquired characteristics and due to the environmental conditions of growth and rearing.

Statistical Distribution. Where a trait is due to a greater or less number of factors in the germinal constitution its statistical distribution in a population may be represented by some such graph as that shown below. Among such are stature, head measurements, length of span, and other bodily dimensions, intelligence, and speed of reaction or performance. On the other hand, such a trait as night-blindness or hæmophilia (bleeding disease), is either present or absent and cannot be distributed in any quantitative scale.

Such distributions actually represent the results of both combinational variations and environmental modifications. Nevertheless, if we assume that the environment be made as nearly uniform as possible for a great number of infants, we should find that the distribution of their statures on arrival at age twenty-one took some such form as that represented above, p. 132. On the other hand, if we made the heredity as nearly uniform as possible so as to get variations due solely to environmental differences, such as infant care, food, play, housing, contagious diseases, we should find that the variations were also distributed in similar fashion, except that in the latter case the range of variation would be much less than in the former. In other words, just as the combination of hereditary factors runs from very good to very bad, so also do the combinations of environmental circumstances that affect individuals throughout their growth period. But the variations produced by these latter combinations will be less, in the case of physical traits, than those produced by the former.

We see here not merely a tendency for individuals of a more or less homogeneous group to cluster about a type, but also a similar tendency for the social conditions affecting these individuals to cluster about a certain average value depending on time and place. It is, therefore, necessary for the student of society to do most of his thinking in terms of modes and averages rather than in terms of individual instances.

In similar manner the distribution of variations in mental ability may be illustrated by the results of mental tests given

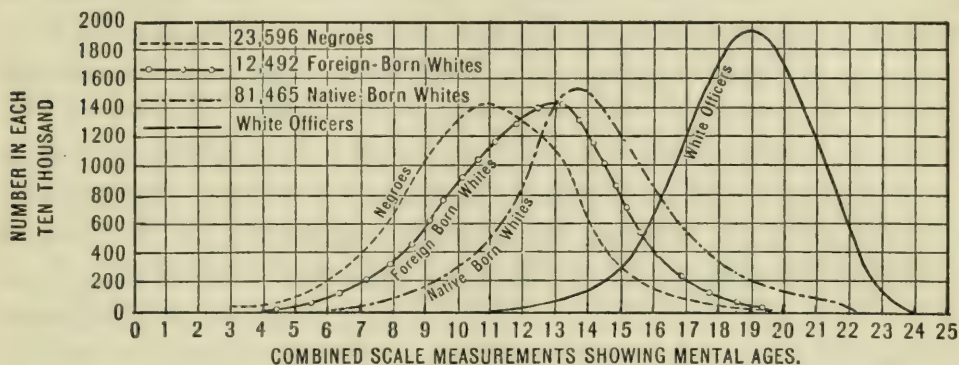


FIG. 28.—Distribution of mental ages of officers and recruits as found by psychologists during the recent war. Note the general form of the curve for each class, the average difference between them, and the overlapping. Data from "Psychological Examining in the U. S. Army," ed. by R. M. Yerkes, *Memoirs*, National Academy of Sciences, Vol. XV, 1921.

during the World War by Army psychologists to officers and three classes of recruits: Negroes, Foreign-Born Whites, and Native-Born Whites. (Figure 28.)

The foregoing figures, like all representations of the results of mental tests, mingle the hereditary with the environmental differences. They represent the results of a mixture of combinations and acquired characteristics. The differences, however, create a presumption that the officers were by inheritance more intelligent than the others, and that the Negro was on the average less well endowed. As in all such group comparisons, also, there is much overlapping, so that some of the Negroes excel some of the White officers. It should be added that, were it possible to secure measures of the hereditary mental abilities of a population they would be distributed through some such range as illustrated above and in much the same manner, with relatively few at the extremes and many about the average. It is interesting to note

also that the officers, representing a selected group, show much less range in variation than the others, as well as an average nearly 50 per cent higher than even the Native Whites.

HEREDITY

Theory of Lamarck. One of the early theories of inheritance, advanced by Jean Lamarck (1744–1829), a Frenchman, held that organic evolution is most satisfactorily accounted for by the inheritance of what we have above defined as somatic modifications or variations. He held that internal need or desire resulted in use or disuse of different organs and that the effects of such use or disuse tended to be inherited. Lamarck was searching for a theory of evolution or transformism. He would, for example, explain the dark skin of torrid zone peoples as due to the inheritance of the effects of tanning by the sun. Many people nowadays try to explain the mental superiority of children of the educated class as due to their inheritance of some of the effects of their parents' education. These are easy and plausible explanations, but they are now generally rejected. (See section on "Inheritance of Acquired Characters" below.)

Pangenesis. The theory of inheritance advanced by Darwin (1809–1882), known as pangenesis, assumed that every organ of the body secreted a special entity called a pangene, or gemmule, which entered into the germ plasm and accounted for the reproduction in offspring of the attributes of parents. According to this theory there was considerable possibility of influencing the attributes of offspring by the modification of parental traits through use or exercise, such as Lamarck's doctrine had assumed. While Darwin was somewhat doubtful as to the extent of the inheritance of such modifications, many Darwinians believed thoroughly that modifications of the parental organism, such as the increased strength of the arm of the blacksmith through daily use or the cultivated mathematical or musical ability of a parent, would affect the endowments of offspring. Darwin's theory of heredity has, however, been rejected and its place taken by two universally accepted and mutually supplementary theories, namely, Weismannism and Mendelism.

Weismannism. A German biologist, August Weismann (1834–1914), advanced the theory that in the very first division of the fertilized ovum, or very shortly thereafter, the portion

which afterwards develops into the body of the offspring differentiates from that portion which afterwards forms the germ cells. He thus sharply distinguished the soma plasm, or body, from the germ plasm, or reproductive glands, and argued that there is a continuity of the germ cells from generation to generation. Since the egg and sperm, whose union creates a new individual, are derived by division from the parental germ plasm, there is an actual physical continuity of the germinal protoplasm from generation to generation so long as the stream continues. Weismann made the individual only the bearer or trustee of the germ plasm. The hereditary stream flows on, crossing in each generation with another, and producing individuals who are offshoots of this constantly changing stream. Children have been said, therefore, to be, in fact, the younger brothers and sisters of their own parents; they derive their traits from the long and many-branched lines of their numerous ancestors. This doctrine of the "continuity of the germ plasm" thus reveals the potential immortality of heritable traits.

The accompanying Figure 29 illustrates the main features of Weismann's doctrine. Let A represent a fertilized egg after its first division into two exactly similar cells. There-

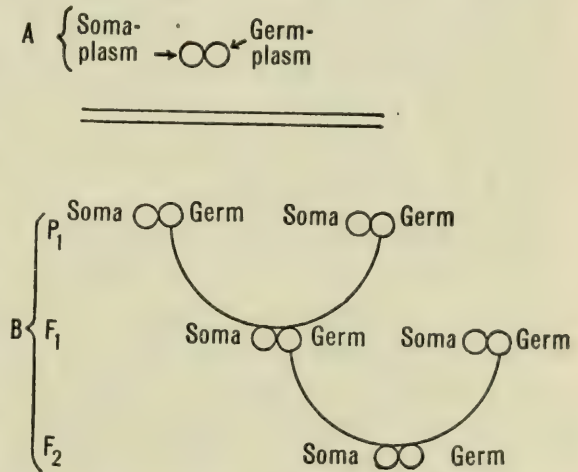


FIG. 29.—Graphic representation of Weismann's theory.

This unites with another from the opposite sex, and the processes of growth and differentiation are repeated. This is represented in B, in which P₁ stands for the first parental generation, and F₁ and F₂ for the first and second filial generations. In this way there is an actual physical continuity of the germ cells from generation to generation. It is

in this way that the germs of this generation produce both the bodies and the germs of the next; or, we may say that the body does not produce the characteristics of the germ cells, but rather that the body in each generation is a sort of offshoot from the continuing stream of germ plasms.

Inheritance of Acquired Characters. Weismannism directly conflicts with the Lamarckian theory that modifications of parental structure, due to use or exercise, may be inherited by offspring. It holds that the germ cells are affected little, or not at all, by the bodily conditions of the parents. One of the most striking illustrations of this fact is seen in the experiment in which Professor Castle first excised the ovaries of a white albino guinea pig, and transplanted therein the ovaries of a pure-bred black one. This white female was then mated with a black male, and all the offspring were black. The white body of the mother had had no effect on the color of the offspring, this being determined by the ovaries which had been transplanted to her and the black-strain sperm. Bodily mutilations, such as cutting off the tails of mice during many generations, or the ancient practice of the Jews in circumcision, have produced not the slightest modification in the traits of offspring. The fact that a man shaves all his life does not prevent his son growing a beard. During the past thirty years there have been countless experiments designed to test the validity of Weismann's conclusion, and it is possible to say that there has thus far been not one single decisive experiment that would prove the contrary.

If we define an acquired character strictly as a somatic modification due to use, habit, or injury, we seem safe in saying that they are not inherited. There is thus no foundation for all those numerous popular notions that the education of parents in some way increases the innate intelligence of their children. If the children of musical parents manifest musical ability and the children of highly educated parents make rapid progress in school, it is because the children inherit the germinal endowments of the parents, and not because the parents have been trained or have exercised certain neuromuscular structures.

We have, however, to distinguish between the modifications of the parental body through use or exercise and modifications of the parental germ cells through elements carried in the blood. It is of great importance that the germ cells, as well as the body, are

nourished by the same blood. Any deleterious substances, such as alcohol, which permeates all cells of the body, or which is carried by the blood to the germ cells themselves, may affect the vigor or viability of the eggs or sperms then developing. Such effect might be sufficient to affect the individuals derived from them. Thus Professor Stockard has demonstrated that the continued inhalation of alcohol by guinea pigs affects the viability of their offspring. Dr. Bassett has shown that alcoholization of white mice will result in their progressive deterioration from generation to generation in brain and body weight. In this manner an agent which can reach the germ cells may produce a general debility of the entire organism. Professor A. F. Shull¹ says of some such experiments: "The animals which inhaled the alcohol fumes were not appreciably altered by them, but some of their offspring showed degenerative changes. Among these changes were stunted growth, loss of eyes, deformities of the toes, and paralysis. Many of the offspring escaped serious injury, and these, without themselves being treated with alcohol, produced families including again numerous defective offspring. The defects were handed on for several generations; but gradual elimination of the damaged members of the families occurred until the survivors were actually superior to the progeny of the untreated animals. Pearl, in similar experiments on poultry, found that, while the birds treated with alcohol were not injured, a larger percentage of their eggs were infertile, or the embryos or young chicks died in the shell. Those which arrived at the stage of hatching were apparently uninjured and were, of course, the stronger and more vigorous birds."

It would seem that in these cases the net effect of the alcoholization was to set up a selective action, which, in the course of time, eliminated the weaker strains and left the stock stronger than it was at first. Every such case is different in essentials from the inheritance of acquired characters. They all are cases where the germ cells are directly affected rather than cases where the use, disuse, or mutilation of a bodily part produces a like modification in offspring. If, for example, it could be shown that alcohol produced in a parent an ulcerated stomach and that the offspring were born with such a stomach, we should have a case of the inheritance of an acquired character. If such traits were inherited,

¹ A. F. Shull, *Heredity*, McGraw-Hill Book Co., 1926, p. 161.

or tended to be in any important degree, the extensive search of the past thirty years would certainly have discovered some clear illustrations by this time. Instead, we have only a few doubtful cases which can be explained by other established principles.

Studies of Heredity by the Biometrical or Group Method. Before passing on to a description of the latest theory of heredity, it seems logical to give some attention to a method of studying inheritance in man which was developed before the Mendelian principles were discovered, and still has very considerable value. The first systematic studies of human inheritance were quantitative studies undertaken by Sir Francis Galton (1822-1911), a truly remarkable English genius and first cousin of Charles Darwin. They have been continued by Professor Karl Pearson at the Galton Laboratory of the University of London, by Raymond Pearl, Frederick A. Woods and other biometricians in this country, and by educational psychologists in England and America. Their biological viewpoint is that of Neo-Darwinism or the Darwinian theory of variation and heredity, as modified by the acceptance of Weismannism. In the first place, they assume that human traits tend to vary about a typical form much in the manner of the normal curve of distribution. They then seek to measure the intensity of inheritance by measuring the extent to which like variations from the mean or type occur in parents and children. In other words, they seek to find out to what extent tall parents have tall children and short parents short children; to what extent superior parents have superior children and inferior parents inferior children.

Since individual cases may be contrary to the general rule in such matters, they seek to arrive at the general trend by taking a large number of cases. They view the operations of heredity and variation as analogous to the laws of chance or the laws of large numbers. Thus, if we toss up 20 coins we may get any combination from 20 heads and no tails to 20 tails and no heads. We should be more likely to get 10 heads and 10 tails than any other combination; the next most probable would be 9 of one and 11 of the other; then 8 of one and 12 of the other, and so on to the least probable ones of 20 all alike. Any one throw of the coins might give a very unusual result, but in the long run we would get more combinations of 10 heads and 10 tails than any other. The mathematician can easily compute how frequently each

possible combination should appear in 1,000 throws. If we tossed these coins 1,000 times and then plotted the frequency with which we got each possible number of heads from 0 to 20, we should have a symmetrical curve called the normal curve of distribution, or the curve of error, similar to the curve plotting the statures of the Japanese or the Norwegian soldiers.

It was long ago discovered that the statures, or chest measurements, or cephalic indexes, or measurements of many other physical traits of a homogeneous group of men are distributed in the same manner as such chance combinations. It is because of this similarity in statistical distribution that those variations due to the continued reassortment of existing hereditary factors are called "combinations." What the biometricians seek to do is to compare a group of fathers each with his own sons, in such a way that the general trend of similarity between them will be brought out, just as repeated tossings of the coins bring out the tendency of the 10-10 combination to prevail over all others. To make the matter clear, however, we should note that, if our coins are "loaded" so as to bring up heads with unusual frequency we should get some such combination as 12 heads and 8 tails or even 15 heads and only 5 tails more frequently than any other. The loading here is comparable to the force of heredity, and such a combination would be interpreted as superior to the 10-10 combination, or average. On the other hand, if the coins were "loaded" on the other side we might get 8 heads and 12 tails or even 5 heads and 15 tails, thus getting inferior results. So in life, some strains produce superior offspring with unusual frequency and others produce inferior ones with an undesired but fatal regularity. At the same time, superior parents sometimes have inferior offspring, and *vice versa*, just as loaded coins will sometimes come down in ways directly opposite from their loadings. It is, therefore, possible to discover the exact force of the loadings only after a good many throws. By comparing a large group of parents and children throughout the entire range of variation, the biometrician can measure, by means of the coefficient of correlation, the extent to which a parental superiority or inferiority is shared by offspring.

There are two matters of importance relating to the biometrical studies: (1) Galton's theory of regression; and (2) the correlation of traits in parents and children.

Regression. It is a common observation that tall men tend to have tall sons and short men short sons. Galton discovered, however, that sons, on an average, varied away from their fathers' heights toward the mean height of the general population. The sons of a group of quite tall fathers are on an average shorter than the average stature of the fathers, while the sons of short fathers, are, on the average, taller than their fathers. Hence, as regards stature, sons tend to *regress toward the general average of the race*. Such a tendency applies only to the group viewed as a whole. It does not prevent tall parents having children taller than themselves, nor short ones having children shorter than themselves. What is the extent of such regression? Galton found that it amounted to about one-third of the difference between the average of the two parents and the average of the race. That is, if the parental average were six inches above that of the race, the sons' average would be four inches above the racial. This regression is readily explained by Weismann's doctrine, since each person is a child of his race, or rather, the child of his whole series of ancestors. There is a constant division and fresh combination of germinal material from generation to generation, so that, in a fairly homogeneous population, each individual inherits a number of genetic elements common to the mass. These ancestral elements tend to pull him away from his immediate parents toward the mean of the race to which he belongs.

We should note in this connection some interesting corollaries, which seem like contradictions, of the theory of regression. Although the statures of sons are on an average less exceptional than the statures of their fathers, some sons of tall fathers will be still taller and some sons of short fathers will be still shorter than their fathers. On the other hand, a group of tall sons will have fathers who, on an average, are shorter than themselves; and *vice versa* for the short sons. If we apply this reasoning to the trait intelligence, we see that, (1) the offspring will be less exceptional in either direction than parents, on the average, though some will be more so; and, (2) although superior parents will have superior offspring much more frequently than ordinary parents, it is still true that most superior children will be derived from parents who are less exceptional. This last is because there are very few superior parents, and, as a rule, they have

few offspring, whereas there are many average parents, and some of them have numerous offspring. Men of genius excel their parents; but the sons of genius seldom equal their fathers. There is thus always some play of chance tending to produce exceptional individuals in one direction or another, and over against this is the steady pull of the racial norm drawing the vast majority back toward mediocrity.

Correlation. These studies of Galton culminated in the work of Karl Pearson and others who developed the mathematical technique for measuring the degree of resemblance between parents and offspring. They measure *the extent of concurrence in the variations from the average for a given trait in parents and children*. The results are expressed by *the coefficient of correlation*, designated by the letter r . If, for example, sons always differed from the average stature of the population by the same amount as their fathers, then the correlation of stature in fathers and sons would be, $r = + 1.00$. In this case we could say that heredity is perfect, because, if we knew the height of a father, we could tell the height of his sons. If there were no tendency for tall fathers to have tall sons nor for short fathers to have short sons, so that sons of any and every height might equally well have fathers of any and every height, then there would be no correlation or, $r = \pm 0.00$. If, again, the sons differed from the father but always in the contrary direction and according to a fixed ratio, tall fathers having short sons and *vice versa*, then the correlation would be, $r = - 1.00$.

Using this method, which cannot be made entirely clear in an elementary text, Pearson and others have established the correlations for physical traits shown in the following table.² They warrant the general conclusion that the force of heredity, as shown by the correlation of physical and mental traits in parents and children, is about equal to $+ 0.50$. This is a very high value, for we shall see later that, by the same methods, Pearson concludes that the force of the environment is not one-seventh as great.

² Compiled from *Eugenics Laboratory Lecture Series*, Karl Pearson and others, and *Medical Biometry and Statistics*, Raymond Pearl, W. B. Saunders Co., 1923, p. 310.

CHARACTERS CORRELATED	VALUE OF R
Stature of father and son	+.51
Stature of mother and son	+.49
Stature of brother and brother	+.51
Stature of brother and sister	+.55
Duration of life of father and adult son	+.135
Forearm of father and son	+.42
Eye color of father and son	+.55
Stature of father and daughter	+.51
Stature of mother and daughter	+.51
Mental ability as shown by Oxford class lists, father and son	+.49
Stature of sister and sister	+.54
Mental ability, brother and brother	+.52
Mental ability, brother and sister	+.49
Tuberculosis, parent and offspring	+.40 to .60
Tuberculosis, pair of siblings	+.48

Mendelism: The Germ Cell. In order to understand the Mendelian theory of heredity and the recent developments in genetics we must first understand something of the nature of the germ cell and its behavior as the carrier and distributor of hereditary units. The main divisions of a cell are its nucleus and the surrounding cytoplasm. Within the nucleus are a greater or less number of very minute bodies called *chromosomes*. They are always of the same number for all the cells of a given species, and arranged in pairs, there being four pairs in the fruit fly, *drosophila*, and twenty-four pairs in man. The reason for the arrangement of the chromosomes in pairs is that one of each pair comes from each parent. That is, the matured egg and spermatozoön, when ready to conjugate to form a new individual, each carries in its nucleus only half the number of chromosomes characteristic of a species. The egg and sperm are, at this stage, called *gametes*, that is, marrying cells. Any gamete receives from each pair of chromosomes either the one derived from the male parent or the one derived from the female parent, but never both. When, now, the male and female gametes unite to form the fertilized egg, or *zygote*, the full number of chromosomes is restored, each gamete bringing one-half. It is always a matter of chance whether a given gamete gets the chromosome of a particular pair that came from the paternal or the maternal line. There is thus a constant shuffling of the chromosomes which accounts for the combinational variations among offspring of the same parents.

The chromosomes are not themselves the determiners of hered-

itary traits, but rather their carriers. The factors for such traits are called *genes*, which may be conceived as extremely minute bundles of chemical agents, mere traces but with an almost miraculous potency, packed in a row in the chromosome, like peas in a pod. These genes are very numerous and yet are systematically and uniformly arranged in the chromosomes. Though one chromosome in each pair comes from the male line and the other from the female, the genes are of the same number and in the same order on both. It follows that genetic factors for all traits of the body are found in each set of chromosomes contained in ovum or egg. If any gene or factor is not present in the gametes, its corresponding trait cannot appear in the body derived therefrom. This is pretty obvious, for all it means is that brown eyes cannot appear in a pure blue-eyed stock nor wavy golden hair in a pure Negro. Mutational variations are due solely to changes in the genes, so that those variations on which organic evolution depends cannot be produced at will. Man can, however, learn how to preserve and utilize the favorable genetic alterations that occur among domestic animals by suitable breeding methods.

There is no greater mystery and no greater marvel in all nature than the manner in which the infinitesimal traces of chemicals, constituting the genes, combine to form a zygote and then unfold in embryological development, each embryo according to the manner of its own kind. For, it must be remembered that these genes are so infinitely small that they cannot be seen by even the highest powered microscope. The germ cell itself is microscopic, but its nucleus is only a small fraction of its total substance. The chromosomes occupy only a part of the nucleus, and yet they contain an orderly array of genes.

Dominance and Recession. We have seen that each set of chromosomes, maternal and paternal, contains genes for every trait. In the zygote there is, therefore, a pair of genes for every trait. The pair for any trait are called the *allelomorphs* for that trait. If the two members of a pair are exactly alike, the individual is said to be *homozygous* for that trait; if they are unlike, he is *heterozygous*. Pure strains are always homozygous for certain traits. Thus a strain may be pure for eye color, all individuals in it having the same, or approximately the same, color. A race is a group that is homozygous for a number of traits. All thoroughly pure Nordics for example have white skin, blond hair,

and blue eyes. In a mixed, or heterozygous, strain the allelomorphs differ and combine in such ways as to give different results.

This may be illustrated for eye color if we let BB represent the two genes, one from each parent, for brown eyes in a pure stock, and bb the two genes for blue eyes in a pure stock. So long as each stock is mated with itself the color remains uniform in each. If we cross them, however, remembering that each gamete carries only one of a pair of allelomorphs, we get the combination Bb , as follows:

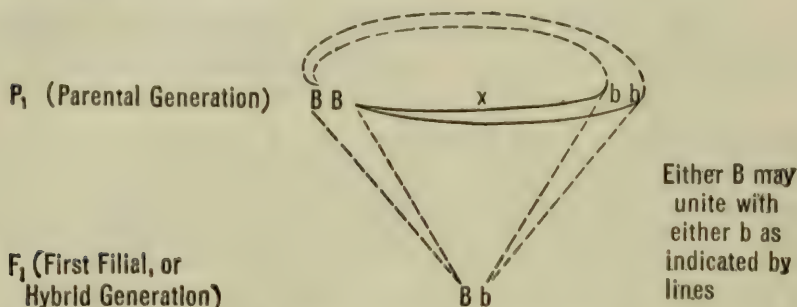


FIG. 30.—Drawing to illustrate how the crossing of two pure strains results in a hybrid.

If, now, we mate two individuals of the hybrid stock we get the following combinations:

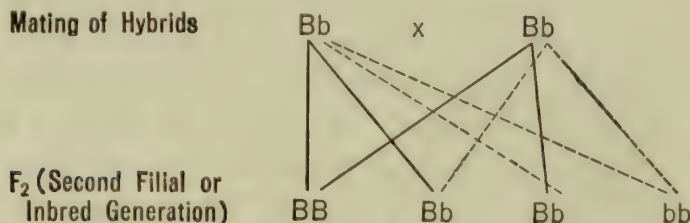


FIG. 31.—Drawing to illustrate how the inbreeding of hybrids results in such recombinations of chromosomes as to bring out the ancestral types BB and bb . Since B is dominant over b the ratio of dominants to recessives is, in this case, 3 to 1, or three-fourths of the offspring of hybrid matings have brown eyes.

Under the laws of chance each of these combinations is equally probable. We thus find that one-fourth of the offspring of the hybrids are homozygous brown and one-fourth homozygous blue like the grandparents. If these are mated, each with its own kind, the homozygous state is preserved. The remaining one-half are heterozygous like the parents, and if mated with like hybrids will give the F_2 combinations again. But all these het-

erozygous individuals have brown eyes. In other words, brown is *dominant* over blue, and when the factor, B, for brown is present, it manifests itself in the soma over its allelomorph, b, which is then said to be *recessive*.

The Three Laws. This illustration brings out only a few of the main elements of Mendelism. It does, however, serve to show the operation of the three primary laws of that theory. There is first, the *law of dominance*. As we have just seen, B is dominant over b. This means merely that, so far as this one trait is concerned, individuals derived from the combination Bb will look like those derived from the combination BB. There may thus be in the hybrid a difference between the somatic appearance and the germinal constitution. The only way to discover the hereditary potentialities of hybrids is, therefore, to mate them, and then to segregate the offspring according to types. In this way new strains of domestic animals are being constantly produced. In the case of man, little segregation occurs, so that pure strains are doubtless extremely rare.

Such simple and complete dominance as that illustrated is, however, more rare than common in man. In fact, it is by no means clear that the law of dominance works in this simple fashion even for eye color. There are many cases of partial dominance and of blending of traits in man. By blending is meant the tendency of the offspring to develop the trait in a form or degree intermediate between that of the two parents. Thus mulattoes have an intermediate skin color. Such cases are explained by the assumption that there may be several factors for a trait, so that additional doses of the determiners for the trait result in its more complete expression. Thus, pigmentation grades through many degrees, as do also stature and intelligence. It should be remembered, however, that even in blended inheritance the factors very probably are passed along from generation to generation in strictly Mendelian fashion.

A second law is that of the *segregation of the chromosomes to the gametes*. By this is meant merely that in the *reduction division* of the ordinary germ cell, which leads to the formation of the gametes, every pair of chromosomes is separated, only one of each pair going to any one gamete. The gamete is thus always pure or homozygous for any trait. In the above illustration any gamete would carry the gene or factor for B or for b, but never

for both. This is sometimes called the law of the splitting of the hybrids, and is the most important of the Mendelian discoveries.

A third law is that of *the independent assortment and recombination of the chromosomes*. They reassort themselves independently one of another, just as, in dealing cards, any card may be dealt independently of any other. It follows that in the recombination of the chromosomes every possible combination may occur. But it should be added that the genes on the same chromosome are, as an almost universal rule, passed on together. The only exceptions to this are when the members of any pair, having joined as they do in one of the cell processes, do not pull apart in integral fashion but interchange a part of their genes. In such cases the shuffling of traits and their recombination may be even more diverse than ordinarily. In man, since any one chromosome may combine equally with either member of the other twenty-three pairs, and since each chromosome carries many genes, and since the allelomorphic genes are more likely than not to differ from each other, it is not surprising that even in closely inbred strains a considerable variability is manifested. The number of different chromosomal combinations for a single human pair could give rise to more than one and one-half billion different individuals. There is thus ample basis for the universal, one might almost say infinite, variability in man.

Dominance and recession have been clearly established with respect to certain traits. Deaf-mutism, for example, behaves in

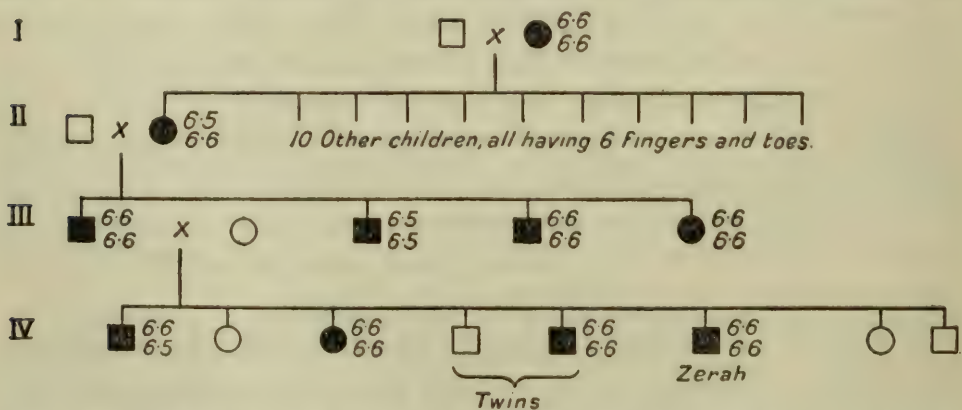


FIG. 32.—Pedigree of a hexadactylous family. Squares indicate males, and circles, females. Black indicates presence of the trait. Figures indicate numbers of fingers and toes, right and left. I to IV are generations, and x means marriage. In an isolated village in France nearly all the inhabitants, through inbreeding, acquired six fingers and six toes. After R. R. Gates, *Heredity and Eugenics*, The Macmillan Company, 1923, p. 104, by permission.

inheritance like a simple recessive. Two individuals who carry it as a recessive trait, and thus appear normal themselves, may have offspring manifesting the trait. Under the laws of chance all or none of their children might be deaf-mutes, but on the average one-fourth of them would be homozygous normal, one-half heterozygous like the parents, and one-fourth deaf-mutes, having received the gene for this trait from both parents. Such facts make the marriages of cousins in stocks known to carry recessive defects more or less ill-advised. Brachydactylism behaves as a simple dominant. The following table ³ gives a list of dominant, partially dominant, and recessive traits. Such a list is not to be accepted as final, but rather as indicating the present state of knowledge.

TABLE OF HUMAN TRAITS WHICH ARE BELIEVED TO BE INHERITED IN SIMPLE MENDELIAN MANNER

DOMINANT	RECESSIVE
Dark hair	Light hair
Dark skin	Light skin
Skin and hair spotted with white	Uniformly colored
Hypotrichosis (lack of hair: beaded hair)	Normal
Pigmented skin	Albinism
Keratosis, ichthyosis, tylosis (horny, scaly, or thickened skin); and epidermolysis (loosening of epidermis from layer below).	
Dark eyes (brown, black, front of iris pigmented)	Normal skin
Hereditary cataract; pigmentary retinitis; glaucoma; displaced lens; nystagmus (involuntary lateral motion)	Light eyes (blue, only back of iris pigmented)
Tall stature (in part)	
Achondroplastic dwarfism	Normal eyes
Polydactylism (excess digits); brachydactylism (short digits); syndactylism (webbed digits); symphalangy (stiff digits); hereditary fragility of bone; exostoses (outgrowths of long bones)	Short stature (in part)
	Normal
Normal	Normal
Hare lip (?); Hapsburg lip	Deaf-mutism; otosclerosis (?)
Diabetes insipidus (excessive urination)	Normal
Superior mentality (in part)	Normal
Normal mentality or nervous constitution	Inferior mentality (in part)
	Hereditary feeble-mindedness, epilepsy, and insanity; Meniere's disease (auditory vertigo); chorea; multiple sclerosis (hardening of parts of cerebro spinal nerve areas)

³ Composed from S. J. Holmes, *Trend of the Race*, Harcourt, Brace and Co., 1921, p. 181, and W. E. Castle, *Genetics and Eugenics*, Harvard Univ. Press, 1925, pp. 338-339.

Among traits which are probably Mendelian but for which dominance is either uncertain or imperfect may be mentioned: Defective hair, defective teeth, extra teeth, a double set of permanent teeth, tendency to produce twins, and left-handedness. Possibly otosclerosis, or deafness due to thickening of the tympanum, and hair lip included above belong in this list. Moreover, the student should be skeptical of any such lists; the inheritance of mental traits especially is far from clear. (Figure 32.)

Sex Determination. There have been a multitude of theories to explain why it is that one child turns out to be a boy and another a girl. This perennially interesting fact, fraught as it is with poignant human emotion, furnished a happy hunting ground for fakirs and quacks and exhibited human gullibility at its worst. Here, as in other matters, man resorts to magic when ignorant of the actual chain of cause and effect. The discovery, about 1910, that the primary basis of sex determination was in the chromosome combinations was, therefore, most illuminating. We now know that there are special chromosomes for sex, usually called X and Y. The combination XX results in female, XY in male. Eggs, therefore, always carry an X chromosome, while sperms carry either X or Y. We, therefore, have this simple situation.

Parents	XX	x	XY
Germes	X or X	x	X or Y
Offspring	XX	or	XY

FIG. 33.—Illustration of sex determination. Remember that either female germ (X or X) may unite with either male germ (X or Y), and that these four combinations are equally probable.

Theoretically, under the laws of chance, the combination XX should be no more and no less frequent than XY. This equal ratio is, however, in the case of man slightly disturbed so that in most countries the ratio is about 105 males to 100 females. Where the factors or genes for other traits than sex are in the sex chromosome these may be passed along in the same manner, thus giving rise to the *sex-linked* traits, illustrated on a later page.

Hormone Theory of Graded Sexuality. There is, however, something more to be said regarding sex-determination. There are many cases, even in birds and mammals, of arrested sex development or even of sex reversion. In Scotland a few years ago

a hen that had laid eggs ceased laying, drooped for a period, then developed male secondary sex traits (comb, wattles, etc.), crowed, and actually became the father of two chicks. Examination showed that the ovary had degenerated in consequence of a tumorous growth, the ovarian enzyme or hormone then ceased to be formed, with the result that male primary and secondary sex traits developed. In birds, the female appears to be a suppressed male. The opposite is the case in mammals. It often happens that one of a pair of twin calves is sexually undeveloped. Professor Frank Lillie discovered that such cases, known as free martins, were suppressed females having a male twin. In embryological development, the membrane separating the two embryos was penetrated by blood vessels so that the hormones or enzymes secreted by the developing male sex glands penetrated to its female associate, with the result that the female failed to develop sexually. Such cases have given rise to the *theory of intersexes*, or the theory that sex traits have an important endocrinological basis.

While the primary sex traits are based on the chromosome combinations, there is a considerable variability in the extent of masculinity or femininity as the case may be. Especially is it true that the secondary sex traits, or those external traits, such as voice, beard, mammary glands, and bodily form, which distinguish the sexes, develop in quite different degrees and with much overlapping between the sexes. Effeminate men and masculine women represent intermediate forms or intermediate types of endocrine balance. This does not affect the explanation of sex and sex traits as hereditary, but connects their development and manifestation with bodily physiology. Linked with the sex chromosomes are factors affecting the character of the ductless glands, whose activities are of primary importance in bodily growth and energy. While some of these glands, notably the thyroid, are greatly affected by environmental conditions in individual cases, their general nature is determined by inheritance. A similar explanation applies to some of the psychic differences of men and women.⁴

⁴ For a full discussion of these matters, see M. M. Knight, "The New Biology and the Sex Problems in Society," in *Totem and Taboo*, Moffat, Yard and Co., 1920; Richard Goldschmidt, *The Mechanism and Physiology of Sex Determination*, George H. Doran Co., 1923; and Alex. Lipschütz, *The Internal Secretions of the Sex Glands*, Williams and Wilkins Co., 1924.

The Sex Ratio. It was stated above that, normally, there are at birth about 105 boys to 100 girls. This ratio is, however, a general average of all cases and is altered appreciably under special conditions. Young mothers have a much larger number of boys. In 8,000 births at a Manchester (England) hospital, mothers around 15 years of age bore 163 boys to 100 girls; mothers around 20 had 120 boys to 100 girls; those around 30, 112 to 100; and those around 40, only 91 to 100. It has been frequently noted that the births immediately following a war show an unusual number of males. Dr. C. C. Little ⁵ and Professor Raymond Pearl ⁵ have shown that the crossing of races increases the proportion of males.

Many explanations for the departure of the sex-ratio from equality have been proposed. The most plausible rests on the difference between the X and Y sperms. It is clear that the sex is determined by the sperm, since all eggs are alike in having the X chromosome. Any difference, therefore, between the X-carrying and the Y-carrying spermatozoa would affect the sex-ratio. It is now clearly established that the X sperm in man is much larger than the Y. It may be, therefore, that the latter is more mobile, swims faster, and more frequently reaches the ovum first.

Why then should younger mothers produce an unusual number of boys? The explanation is not to be found in the mothers, because sex is determined by the male germs. But the younger mothers have younger husbands than the older mothers. A possible explanation, therefore, is that the younger husbands produce a larger proportion of Y-chromosome spermatozoa.

Sex-Linked Inheritance in Man. There are several peculiar human traits which have been shown to be linked with sex in inheritance. Since they appear usually in males but not in females but are passed through the female line, the factor for them must be carried in the X chromosome. They pass from males manifesting them, through daughters who do not manifest them, to grandsons. They are generally recessive in females but may appear in them when duplex or homozygous, that is, when factors for them are received from both ancestors. Examples of such traits are hæmophilia, color blindness (of varying form but

⁵ C. C. Little, "Some Factors Influencing the Human Sex Ratio," *Proc. Soc. Exper. Biol. Med.*, Vol. 16, 1919, pp. 127-130; and Pearl, *Studies in Human Biology*, Williams and Wilkins Co., Chaps. iii and iv.

frequently inability to distinguish red from green), and night blindness (inability to see in dim light; sometimes appears in heterozygous females). The following chart shows the manner of inheritance of such traits. We represent by X_h the chromosome carrying hæmophilia. Only males with the X_hY combination manifest the trait in the soma, except that females with the X_hX_h combination may also sometimes manifest it.

A. Mating of tainted female with untainted male.

X_hX	$X Y$
X_hX	$X X$
X_hY	$X Y$

Offspring include one tainted daughter, one untainted daughter, one son who has and will manifest the trait and one unaffected son.

B. Mating of male having the trait with untainted female.

$X X$	X_hY
X_hX	X_hX
$X Y$	$X Y$

Here the daughters carry the taint but do not show it, while the sons are free from it.

C. Mating in which both male and female carry the defect.

X_hX	X_hY
X_hX_h	X_hX
X_hY	$X Y$

Half the daughters receive a double or duplex dose and are homozygous for the trait, and half are simplex; half the sons manifest the trait and half do not.

FIG. 34.—Diagrammatic representation of the inheritance of a sex-linked trait, hæmophilia. In A the trait is passed from mother to one-half the sons. In B the trait is handed back to granddaughters of the original mother; in this generation it is not manifested; but these daughters like their grandmother would pass the trait to some of their sons who would manifest it.

General and Blended Inheritance in Man. In addition to the traits definitely known to be inherited in a simple Mendelian fashion, there are a number of others for which the exact manner of inheritance is still not clear but for which heredity is known to be an important factor. Experimental evidence from elaborate studies with mice indicate that cancer is determined by a recessive factor; this accords with the human evidence. Cancer may, therefore, be passed along for a number of generations in hetero-

zygous stock without manifesting itself. Tuberculosis runs in families to some extent, showing that the character of the hereditary constitution may be a predisposing factor. As with all germ diseases, however, tuberculosis itself cannot be inherited and cannot appear unless the individual be infected. It is possible, therefore, to eradicate this disease by killing the germ. On the other hand, whatever weakens the individual resistance favors an attack, so that the improvement of housing, shortening the hours of labor, increasing the prosperity of the working classes, and improvement in quantity and quality of food, reduce the number of deaths from this disease.

Galton long ago showed that longevity tends to be inherited. Genealogical study of the Hyde family showed that, if both parents died under sixty, the children lived to an average age of 32.8 years; but if both parents lived to be eighty, the children lived to an average of 52.7 years. The following chart from Pearson illustrates this inheritance of longevity as well as the operation of natural selection; if parents die young and their children also perish at early ages there is evidence that the stock is being eliminated by selection. The graph shows that where the father died before age twenty-nine more than 70 per cent of the daughters died before age twenty-one; at the opposite extreme, where the father lived to be over ninety, less than 35 per cent of the daughters died before age twenty-one. Similar charts may be made for either parent and sons or daughters. (Figure 35.)

Finally, may be mentioned the interesting recent discovery of the four types of blood composition among men based on two factors affecting the red corpuscles and two others affecting the blood serum. These factors are associated in pairs, with dominance and recessiveness so adjusted as to give rise to the four types. In blood transfusion it is necessary to use the proper type of blood; also in skin grafts. These studies of blood composition are still in the theoretical stage, but they point to the development in the future of a new method of studying the racial composition of a mixed population and to the possibility of determining cases of doubtful paternity by blood analysis.

Professor Castle ⁶ gives the following list of traits which seem to blend in inheritance: general body size, stature, weight, skin-color, hair form, shape of head, and proportion of its parts. It

⁶ *Op. cit.*, p. 339.

must be remembered that blending does not signify that the Mendelian method is abrogated, but that there are several factors whose varied combinations give rise to varying degrees of the trait. It seems possible to include here also inherent mental

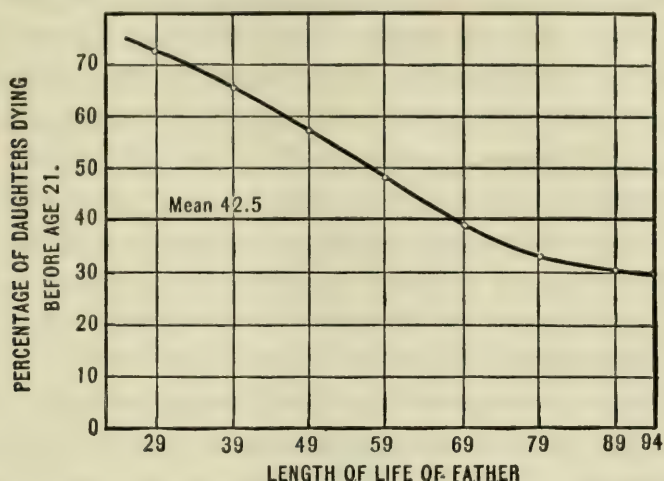


FIG. 35.—This graph illustrates the inheritance of longevity, a trait based on hardness of constitution. It also illustrates natural selection, or the tendency of different strains in the population to die at different rates. (After Pearson.)

level and such special talents as musical, literary, artistic, mathematical, and mechanical.

Mental Inheritance. No one would question that the mental traits of animals, both wild and domestic, are mainly due to inheritance, nor that they tend to be as strongly inherited as their physical traits. Not only are the mental and character traits of dogs in general different from those of horses or cats, but these traits differ from variety to variety of each species and are frequently bred for as definitely as their physical characteristics. Different varieties of any domestic species differ both as regards general intelligence and temperament. These differences in dogs, for example, are universally recognized. The mentality of the Newfoundland is in nearly all respects different from that of the Scotch Terrier, and both differ from the Chow and the Wolf Hound. Both Professor Castle and Professor Yerkes have shown that in crosses of wild male with tame female rats, wildness will be manifested by offspring that have never seen their father and have been reared with the mother. At the same time it is fully recognized that all animals, even the lowest, learn by

experience, with the result that their behavior is alterable by training and the circumstances of rearing, within the limits set by their inherited capacities.

In the case of man, the problem is enormously complicated by the very vastness of his mental capacities, and yet it is becoming clear that progress in our study of mental inheritance in man can be made by a judicious use of the idea of the "mental level." This term is synonymous with such terms as general intelligence, or mental power, as currently used in mental testing. We use the term "mental level" in preference to "mental ability" because the latter commonly implies a degree of skill, a part of which is the result of training or experience. The mental level is, however, only a part of the mental equipment which is deeply affected by heredity. There are in addition traits of character, as yet ill-defined, designated by such terms as steadiness, reliability, honesty, moroseness, suggestibility, and the like. We as readily recognize types of personality as we do differences in mental level. We do not know whether former President Roosevelt had a higher intelligence quotient than President Coolidge or not, but we do know he was a very different type of personality. Just how much of such differences is due to heredity and how much to the experience and schooling of life it is now impossible to say, but we return to the matter in a later paragraph. We may study the force of heredity in relation to mental level from three viewpoints: mental deficiency, normal mentality, and talent or genius.

Mental Deficiency. The three most important forms of mental defect are feeble-mindedness, epilepsy, and insanity. We cannot adequately discuss the last here because there are many forms of it and the respective rôles of heredity and environment vary with the form. That heredity is a factor in many cases is universally admitted; insanity, especially dementia præcox and periodical dementia, shows some tendency to run in families; it is also associated to some extent with the other two types of mental defect, since feeble-minded parents often have insane offspring. On the other hand, insanity frequently occurs in highly organized nervous systems, it being but a step from insanity to genius. While two American investigators, Rosanoff and Orr, conclude that insanity is a simple Mendelian recessive, this view is generally considered to be entirely too simple, al-

though Huntington's chorea behaves as a simple dominant. There are probably, as a rule, several factors involved in the hereditary basis of insanity, and dominance is either lacking or irregular.

In all cases, there would seem to be predisposing neurological conditions and coöperating physiological conditions which are in large part of an hereditary sort. But it may also be said that in most cases exciting causes must be found in the environment. While there are some individuals who would show dementia even under the best of life conditions, others may escape because no experience occurs to upset the mental balance. Still other persons pass through the most trying experiences, however, and retain their sanity unimpaired. Certain forms of insanity may thus be compared to tuberculosis, as regards individual differences in immunity; that is, some strains show a high susceptibility under the ordinary conditions of life.

Epilepsy also shows a decided tendency to be inherited, but contrary to the earlier conclusions of certain American eugenists, it does not appear to behave like a simple recessive trait. It is associated in pathological stocks with feeble-mindedness, migraine, and extreme nervousness. It is also, on the other hand, associated with injury, disease, or alcohol. In these latter cases heredity also plays some rôle as a conditioning factor, for it would appear that a part of the tendency to chronic alcoholism, for example, is due to hereditary nervous defect or instability. The fact that various authors estimate the proportion of cases directly due to heredity all the way from 11 per cent to 56 per cent indicates that the causes of this ailment are not clear.

Feeble-Mindedness. By all odds the most important mental defect from the standpoint of social life is feebleness of intelligence. The earlier studies of feeble-mindedness were made by eugenists interested in the question whether the defective strains of the population were multiplying at an undue rate. Here belong such studies as those made by Professor Chas. B. Davenport and associates on such families as the Jukes, the Kallikaks, the Nams, the Hill Folk, and others.⁷ Setting out from the earlier

⁷ C. B. Davenport, *Heredity in Relation to Eugenics*, Henry Holt and Co., 1911, pp. 65 *et seq.*; H. H. Goddard, *The Kallikak Family*, The Macmillan Co., 1912; R. L. Dugdale, *The Jukes*, Putnam's Sons, 1910; A. H. Estabrook, *The Jukes in 1915*, Carnegie Institution, 1916; A. H. Estabrook and C. B. Davenport, *The Nam Family. A Study in Cacogenics*, Eugenics Record Office, *Memoirs*, 1912; and many others.

and simpler conceptions of the Mendelian theory in which every trait was viewed as a “unit character” traceable in clean-cut fashion to a single gene or determiner, they concluded that feeble-mindedness is a simple recessive. If this were true the mating of normality and feeble-mindedness would give results analogous to the various combinations of B and b in eye color. Not only might feeble-mindedness appear among the offspring of heterozygous parents who did not manifest it, but two feeble-minded parents could have only feeble-minded offspring. This earlier theory of the manner of inheritance of feeble-mindedness is made clear by the following notation:

Parents	NN	x	nn	Mating of full normal with feeble-minded.
Germes	N or N	x	n or n	
Offspring		Nn		Heterozygous person, feeble-mindedness recessive.
Parents	Nn	x	Nn	Mating of heterozygous individuals.
Germes	N or n	x	N or n	
Offspring	N n	Nn	Nn nn	One-fourth obviously feeble-minded.

(1) This simple *present or absent* theory has not been borne out by subsequent study. (2) Moreover, this early work suffered from too loose a classification of individuals to determine with precision the operation of heredity. Many of the studies were made before the days of mental testing, so that the individuals studied could not be subjected to exact classification as to mentality, although it should be said that there is probably no better test of mentality in the long run than the capacity to make self-sustaining adjustments to social life. (3) A more important criticism is that the development of mental testing has shown that there is no sharp dividing line between normality and sub-normality. Every such line is arbitrary, depending for its justification on definition and the convenience or purpose of the investigator. (4) Moreover, it is claimed by some students that it is even possible for a person of normal hereditary endowment to give the appearance of being feeble-minded, if they have been reared in a very crude simple environment furnishing no opportunity for the development of latent abilities. If such cases ever occur, they must be extremely rare in this country, being limited to very small, wholly isolated groups, or to individuals more or less forcibly isolated from ordinary intercourse with their fellow

men. It must be remembered that the ordinary stress of life and the contacts of the day-to-day activities constitute the sole education of the vast majority of men; and they are sufficient to determine the mental level in most cases.

In spite of these defects, this early work succeeded in showing that there is a considerable number of defective strains in the American population; that in such cacogenic families not only feeble-mindedness, but also epilepsy and even certain forms of insanity, are more than usually frequent; that there is among them an unusually large amount of assortative mating, that is, a tendency of like to mate with like; and that they tend to be ignorant, lazy, alcoholic, lacking in self-control and a sense of social responsibility, and prone to licentiousness, prostitution, delinquency, and crime.

Gradations of Intelligence. The above theory would have required a sharp line between the haves and the have nots as regards mental level, but the rapid progress of mental testing has substantiated the original view of Galton that mental ability is finely graded. The individual differences distribute themselves in much the same manner as differences in stature. This would mean that there are several or many factors concerned with the inheritance of brain mass and structure—the neurological basis of mental capacity. Feeble-mindedness thus becomes a matter of definition; it requires the arbitrary drawing of a line between what is to be called normal and what sub-normal. Three main categories, idiots, imbeciles, and morons, are usually recognized. A British Royal Commission of 1913 defined idiots as “persons so deeply defective in mind from birth, or from an early age, as to be unable to guard themselves against common physical dangers.” Imbeciles were defined as “persons incapable of managing themselves or their affairs,” even under conditions more or less favorable; and morons, while superior to imbeciles, were still said to be in need of “care, supervision, and control for their own protection or for the protection of others.”

Obviously, a moron in one social environment need not be one in another. For example, a person, who might manage himself fairly well under the simple conditions of a rural environment, might be hopelessly bewildered in the complex life of a great city. Even Tredgold's more exact definition of feeble-minded persons as those “who are so lacking in general mental capacity, in com-

mon sense, that they are incapable of subsisting by their own unaided efforts," is still too indefinite for school or clinical purposes. The psychologists have sought to remedy this by defining different grades of mental sub-normality in terms of mental age. In 1910 Professor H. H. Goddard proposed that the line between normal and subnormal be drawn at mental age 12 or even 13. That this was much too high was shown by the Army Intelligence Tests which found nearly one-half (47.3 per cent) of the White recruits and nearly nine-tenths (89 per cent) of the Negro recruits to be below this level. It is now customary to draw the line at mental age 9, or between 9 and 10. On this basis, we get the following classification in terms of mental age, that is, the age of mental development as shown by the ability to pass mental tests: normals, mental ages 11 and up; borderline cases, mental age 10; morons, mental ages 8 to 9; imbeciles, mental ages 3 to 7; idiots, mental ages 2 and below.

An even better manner of stating the matter is in terms of the Intelligence Quotient (I. Q.), or the percentage which the mental age is of the chronological age. A person who is neither retarded nor advanced for his years has an I. Q. of 100. Terman's classi-

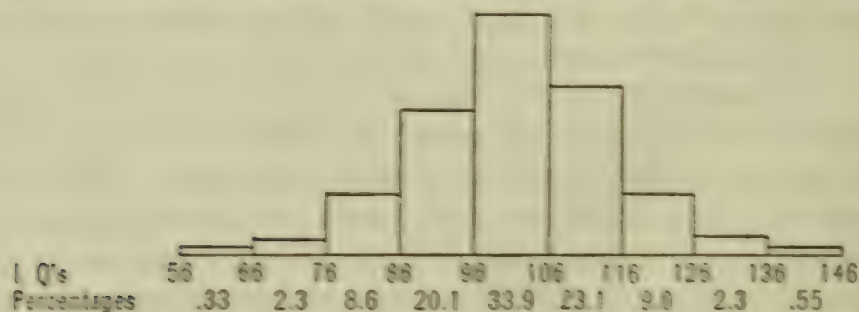


FIG. 36.—Percentage distribution of I. Q.'s of unselected school children. To illustrate the fairly even distribution about the normal average of 100. From Terman, *The Measurement of Intelligence*, Houghton Mifflin Company, by permission.

cation is as follows: above 140, genius or "near" genius; 120-140, very superior; 110-120, superior; 90-110, normal or average; 80-90, dull or dull normal; 70-80, borderline; below 70 definitely feeble-minded; 20 or 25 to 50, imbeciles; below 20 or 25, idiots. This continuity of grades of intelligence has already been illustrated in the graph showing the results of the Army tests. We may illustrate it once more by a graph showing the *Percentage Distribution of I. Q.'s of 205 Unselected School Children Ages 5*

to 14, after Terman. While nearly all of these are normals, they serve to illustrate the gradations of mentality, and give some idea of proportions of individuals at different levels. In the whole population there would be larger percentages below the average. (Figure 36.)

Complexity. Feeble-mindedness is, therefore, not a simple recessive but a complex trait of varying grades and of varying emotional types. So complex is it that, while the geneticists estimate that 90 per cent of cases are due to heredity, the clinicians estimate that not over 50 per cent are so due. The latter argue that injuries in embryological development or in infancy, drugs, or even complete neglect may produce it. Moreover, in hereditary cases a definite degree of mentality may be combined with different kinds of disposition and temperament, so that some feeble-minded individuals may succeed in making more or less satisfactory adjustments to life conditions while others fail utterly. We seem warranted in saying, however, that mental deficiency tends to run in families; that it may appear obvious in children of parents who did not manifest it; and that the children of obviously feeble-minded parents may not show it. These cases can all be explained by the assumption of multiple factors for mental level and the inheritance of these factors in groups, as illustrated in the following conventionalized notation. Here the combination of the factors received from both parents may be taken to represent the mental age.

Parents.....	8-3	x	7-4
Germes.....	8 or 3	x	7 or 4
Offspring.....	8-7	8-4	7-3 4-3

Here each parent has a mental age of 11, or low-grade normality; but the children vary from the distinctly capable (8-7), through low-grade normal (8-4), and borderline (7-3), to definitely feeble-minded (4-3). All sorts of other combinations of mental level may be illustrated by similar notation. If then these are associated in different ways with variable factors for temperament and nervous stability one can picture the complexity of the hereditary basis for different types of defectives.

Social Menace of Feeble-Mindedness. There are very different estimates of the numbers of feeble-minded in this country, ranging from 1 per cent to 3 or even 4 per cent of the population. Much depends on where the line is drawn. The Army psycholo-

gists estimated that about 2 per cent of white and 17 per cent of colored recruits were below mental age eight, and 4 or 5 per cent of white and 32 per cent of colored were below mental age nine. These groups did not include the lowest grade of mental defectives as these were seldom included in the draft. We can only surmise whether these figures are too high or too low, since there is no other comparable survey. Studies of single counties in different states resulted in estimates ranging from .70 per cent to 6.10 per cent of the population. Since there is some apparent tendency for normal mentality to dominate feeble-mindedness in inheritance, there are a great many persons carrying recessive deficiency who do not themselves manifest it. Estimates of their number range from 7 to 14 per cent of the population. On this basis, if we add 2 per cent as obviously feeble-minded, we are warranted in saying that somewhere between 9 and 16 per cent of the population are either feeble-minded themselves or are potential progenitors of feeble-minded offspring, even in the absence of any unfavorable embryological or other birth conditions.

Nor can we be certain of the rate of increase of the cacogenic strains in the population. There is considerable evidence indicating that their fertility is rather higher than the average. In England certain investigations showed the average number of children per family for defective strains to be 6.2 (deaf-mutes, degenerates, criminals, insane, mentally deficient, and tubercular); 7.0 (London mental defectives); 9.12 (female inebriates); other studies resulted in averages of 6.2, 5.6, and 7.6. In these same studies the average size of families for normals ranged from 4.6 to 5.3. In this country results are similar in that in every case the average number of offspring for defective stocks has been found above that for normal stocks. An investigation of the family pedigrees of 310 inmates of the Vineland Training School for Feeble-minded Children (12,022 individuals) gave the following average number of children born per family for different groups: alcoholics, 5.5; non-alcoholics, 4.1; neuropathic, 5.7; hereditary deficiency, 4.5; no cause assigned for defect, 3.8; both parents feeble-minded, 5.2; one parent feeble-minded, 4.6; both parents normal, 4.7. Professor Wallin⁸ found for the families of children studied through a school clinic, including 4,324 children,

⁸ J. E. W. Wallin, *The Education of Handicapped Children* Houghton Mifflin Co., 1924.

that the families with the normal and supernormal cases averaged 3.4 children, while those with the feeble-minded averaged 5.46. He also found that while only 4.76 per cent of the former families had eight or more children, 26.08 per cent of the feeble-minded families had eight or more. Professors Ross and Baber⁹ found the average number of children in 1,066 American families of the classes now sending sons or daughters to college to be 3.35, while in 100 defective families in five western cities it was 6.49.

While there is thus abundant evidence indicating that defective stocks have a certain super-fertility, and while modern social conditions tend to preserve them, there is also considerable evidence indicating that the mortality among such stocks is above normal. All pedigrees of such stocks have shown a very high infant mortality and a short average length of life. Moreover, the poorer the stock, the higher the mortality, and the shorter the length of life is likely to be. On the whole it seems reasonable to conclude that the obviously defective stocks are not increasing at an alarming rate. The real danger does not lie in that quarter. Such stocks are largely under institutional and social control; they sterilize themselves by disease and imprisonment; and are, therefore, probably not much more than holding their own, although they do constitute an increasing social burden. The real dangers to racial soundness lie, first, in the relatively low birth rate of the super-normal, among whom birth control is almost universal, and secondly, in the relatively rapid multiplication of mediocre and somewhat less than mediocre strains that find our wealthy civilization an easy one in which to find sustenance. It is the moron and the border-line population that threatens the ultimate overthrow of social institutions founded on individual liberty and popular suffrage.

The feeble-minded stocks, moreover, constitute an increasing social burden partly through the increased institutional care and special public school classes provided for them, and partly because of their considerable contribution to the ranks of inefficient labor, vagrancy, pauperism, drunkenness, immorality, and crime. Here again the estimates of the proportions of feeble-minded among prostitutes, delinquents, tramps, criminals, and other non-social and anti-social classes vary greatly. There are

⁹ R. E. Baber and E. A. Ross, *Changes in the Size of American Families in One Generation*, University of Wisconsin Studies, 1924.

a multitude of such estimates based on surveys of different groups, and here as elsewhere much depends on the mental age at which the line is drawn. Thus the studies of professional sex offenders have shown from 50 to 100 per cent of them to have a mental age of twelve or less. Obviously if the line be drawn at mental age nine, the percentages are greatly lessened. It seems probable that this class possesses a higher percentage of feeble-minded than the criminals for whom the percentages range from 25 to 60 for different classes. Probably, however, the most important social aspect of feeble-mindedness is in relation to pauperism and poverty. The hope of wiping out such blots, even in our civilization, which is by all odds the richest the world has ever seen, is perpetually defeated by the spawning at the bottom of society of the stocks which have not the intelligence to establish for themselves decently comfortable standards of life. Both their heredity and their culture tend strongly to perpetuate themselves so that poverty of a degrading sort will last as long as feeble intelligences are allowed to reproduce.

Normal Mentality. Because of its wide variability, the study of the inheritance of the middle grades of mental level has not thus far produced striking results. Another reason for this is that, until the recent development of mental testing, there was lacking a reliable quantitative measure of mental ability. The only effective means of studying the inheritance of normal grades of intelligence is by the Pearsonian correlation method, and we may expect in the near future extensive studies showing the correlation between intelligence of parents and offspring as shown by mental tests. However, in this field we now have a considerable number of comparative studies of siblings, that is, children of the same parents. Studies of the Eugenics Laboratory of the University of London as to the resemblance of siblings in mental traits have given the following correlations:

	BROTHERS	SISTERS	BROTHER AND SISTER
Vivacity	.47	.43	.49
Self-assertiveness	.53	.44	.52
Introspection	.59	.47	.63
Popularity	.50	.57	.49
Conscientiousness	.59	.64	.63
Temper	.51	.49	.51
Ability	.46	.47	.44
Handwriting	.53	.56	.48
Average	.52	.51	.52

These results require verification, both because scientific measures for temperament are still lacking, and because environmental influences must be given due weight. In this country many similar studies have been made of the correlations in scholastic achievements of brothers and sisters, giving results comparable to the foregoing. These studies have revealed about the same degree of correlation between brothers and sisters for mental traits as for physical.

Twins. Another approach to fraternal resemblance has been made through the study of twins. The first extensive study was made by Sir Francis Galton¹⁰ who reached the following conclusions: (1) There are two kinds of twins, the identical or uniovular, and the non-identical. (2) Not only the physical but also the mental and temperamental resemblances of identical twins are often so great that they are almost indistinguishable in physique, personality, taste, and intelligence; they suffer from similar ailments, achieve much the same degree of social success, and show an extraordinary similarity of emotions, desires, and ideas. (3) The dissimilarity of identical twins is not noticeably increased by their being reared apart, whereas the dissimilarity of non-identical twins is not greatly reduced by their being reared in the same family, attending the same school, and being subjected to the same psycho-social environment.

Another extensive study of twins, made by Professor E. L. Thorndike,¹¹ was greatly marred by his failure to recognize the existence of the two types of twins mentioned by Galton. He lumped all of his twins together and compared their similarities to those of non-twin siblings. He discovered that the correlation coefficients for the abilities of 50 pairs of twins in a great variety of tests ranged from .69 to .90, or about twice the resemblance of ordinary siblings in the same tests. By comparing younger pairs of twins with older ones, he was able to conclude that a long period in the same environment does not tend to make twins more alike.

Similar results have been attained by a number of other studies.¹²

¹⁰ *Inquiries into Human Faculty*, 1883, now published in Home Univ. Library, E. P. Dutton and Co.

¹¹ "Measurement of Twins," in *Archives of Phil., Psych. and Sci. Methods*, No. 1, 1905.

¹² See particularly C. Merriam, "The Intellectual Resemblance of Twins," *Psych. Monographs*, Vol. 33, 1924; and H. H. Newman, *The Biology of Twins*, Univ. of Chicago Press, 1917.

The most remarkable result from these studies is the extraordinary similarity in all respects of numerous cases of "identical" twins. Coming as they do from the same ovum, they have as nearly exactly the same genetic constitution as nature can give two individuals. Professor Wilder¹³ found that even the finger prints and the skin folds of the palm were nearly identical. Such twins may enter different occupations and have quite different careers, and yet even in adult life they remain remarkably similar in physical appearance, intellectual traits, emotional reactions, and temperament. A most remarkable case of nearly perfect identity in twins was studied from many angles by Professor Arnold Gesell of Yale.¹⁴ Their similarity in both bodily and mental traits was so great as to make them nearly identical persons.

Social Status. Another way of studying the significance of heredity for mental characteristics is by comparisons in mental tests or school achievement of children from different social classes. These social classes may be measured by the father's occupation, the father's income, the general character of the home, or other material measures of parental success. One such investigation¹⁵ gave the following percentages of children scoring above the group median among 548 children classified according to the father's occupation:

OCCUPATIONAL GROUP OF FATHERS	NUMBER OF CASES	PERCENTAGE OF CHILDREN ABOVE THE AVERAGE
Professional	57	85
Executive	105	68
Artisan (skilled)	138	41
Laborer (unskilled)	248	39

In England Karl Pearson computed that distinguished fathers produce gifted children ten times as frequently, relative to numbers, as do ordinary parents. Following in Galton's steps, Professor Cattell in this country found that the fathers of 885 leading American men of science were distributed, according to occupation, as indicated in the first column of the following table, whereas

¹³ H. H. Wilder, "Physical Correspondence in Two Sets of Duplicate Twins," *Jour. of Hered.*, Vol. 10, 1919, pp. 410-420.

¹⁴ Arnold Gesell, "Mental and Physical Correspondence in Twins," *Pop. Sci. Mon.* 14, 1922, pp. 305-331 and 415-428.

¹⁵ L. W. Pressey, "The Influence of Inadequate Schooling and Poor Environment upon Results with Tests of Intelligence," *Jour. Applied Psych.* Vol. 4, 1920, pp. 91-96.

the percentages which these occupational classes constituted in the population at large were those given in the second column.

OCCUPATIONAL CLASS	PERCENTAGE AMONG FATHERS OF MEN OF SCIENCE	PERCENTAGE IN TOTAL POPULATION	RATIO
Professional	43.1	3.0	14.37:1
Manufacturing and Commercial	35.7	34.1	1.04:1
Agricultural	21.2	41.1	.51:1

Fathers belonging to the professional classes were about fourteen times as likely to produce a high-grade scientific man as were fathers of the business classes, and about twenty-eight times as likely to do so as farmers. Similarly, Professor Terman, in his study of superior children ¹⁶ gives the following table to show the distribution of the fathers of gifted children by economic classes in comparison with the distribution of these same classes in the population of San Francisco and Los Angeles.

ECONOMIC CLASS	PERCENTAGE AMONG FATHERS OF GIFTED CHILDREN	PERCENTAGE IN POPULATION (1910)	PERCENTAGE OF QUOTA AMONG FATHERS OF GIFTED CHILDREN
Professional Group	29.1	2.9	1,003
Public Service Group	4.5	3.3	137
Commercial Group	46.2	36.1	128
Industrial Group	20.2	57.7	35

From this we may observe that fathers belonging to the professions produced gifted children ten times as frequently as their proportion in the population, whereas fathers of various labor and industrial groups produced gifted children only one-third as frequently as their proportion of the population.

These results are typical of a multitude of such investigations. They point rather clearly to a superiority in mental endowment of children whose fathers have succeeded best in life. At the same time it must be remembered, first, that such results apply to the average and not to every individual; and, secondly, that the superior children have the advantage also of superior environments. This is, of course, the rule of life. The more intelligent, energetic, self-controlled, and ambitious parents will not only contribute superior physical and mental endowments to their offspring, but will provide for them superior advantages for physical, mental, and moral development. This would be notably

¹⁶ L. I. Terman, *Genetic Studies of Genius*, Stanford Univ. Press, Vol. I, p. 63.

true of such results as those shown in Professor Cattell's table. It would be expected that professional fathers, being themselves well educated and more interested in science than non-professional fathers, would be more likely to direct their sons toward scientific careers and encourage them therein. How much of the superiority of their children is, therefore, due to environment, it is impossible to say, largely because their superior environments are themselves to a very great extent a consequence of the superior inherited capacities of the stocks to which they belong. At the same time when we recall the fact that only a very tiny fraction of 1 per cent of the sons even of the professional classes achieved the distinction necessary to qualify for Cattell's list, we see that environment cannot create the abilities necessary for the highest type of scientific work. Moreover, when we note that a number of Cattell's list came from the commercial and manufacturing classes, and even from agriculturists, where family interest in higher intellectual pursuits is relatively scarce, we see that even an unfavorable environment need not prevent a man gifted with great abilities from rising to the top.

Superior Mentality. A third distinctive approach to the question of the inheritance of mental ability is found in the study of distinguished families. This line of investigation also was initiated by Galton, who, in his *Hereditary Genius* (1869) and *English Men of Science, Their Nature and Nurture* (1874), demonstrated beyond peradventure of doubt that distinction tends to run in families. He found it the rule rather than the exception that a very distinguished man will have one or more distinguished relatives, such as father, son, brother, or uncle. Numerous subsequent investigations have completely confirmed Galton's findings. Thus Professor Pearson studied the rank of fathers and sons at Oxford. His results are summarized in the following table:

SONS OBTAINING	PERCENTAGE OF FATHERS OBTAINING FIRST OR SECOND CLASS HONORS
First class honors	41.9
Second class honors	40.7
Third class honors	33.3
Fourth class honors	28.1
Pass degree	20.1
No degree	12.9

Likewise Professor Woods, in his *Mental and Moral Heredity in Royalty* (1906) discovered a striking tendency not only for mental

superiority and inferiority, but also for pronounced temperamental and moral characteristics, to be inherited. The same author, in a study of the persons elected to the American Hall of Fame,¹⁷ discovered that the majority had relatives of great eminence and that they were from 500 to 1,000 times as likely to have distinguished relatives as the average American. Very recently Professor Terman, in his study of superior children in California, discovered that they counted among their ancestry fourteen of the sixty-two members of the Hall of Fame and numerous other eminent and very eminent Americans.

Summary. We thus see that there is a considerable mass of evidence pointing to heredity as a factor in mental ability. The case for heredity is clearest at the bottom and the top of the scale of distribution. Both mental deficiency and mental superiority tend strongly to run in families, in very much the same manner and apparently to the same extent as do shortness and tallness of stature. All the available data point to the conclusion that the mental level, or what is often referred to as brain power, is inherited to much the same extent as physical vigor and health. The reason for this, no doubt, is that the mental powers, and the qualities of mental stability and temperament, are based on the functioning of the brain and nervous system. But these are physical traits, and there is no known reason why we should not expect them to be as much controlled in their development by hereditary factors as other physical traits.

HEREDITY VERSUS ENVIRONMENT

Introductory Considerations. Since all the causes of the growth or behavior of an individual (plant, animal, or man) are included under the two heads of heredity and environment, there is an endless dispute as to which is the more important. We cannot hope to settle finally so complex a matter but we may clarify our approach to it. In the first place, both sets of factors are necessary. Good seed perishes in the absence of sun and rain. This means that every living thing is dependent on certain essential conditions for its life. Every fruitful discussion of this problem should, therefore, start with the assumption that the environmental conditions will not vary beyond the limits within which

¹⁷ F. A. Woods, "Heredity and the Hall of Fame," *Pop. Sci. Mon.*, Vol. 82, 1913, pp. 445-452.

life is possible. But within these limits environmental conditions range from the perfect through the less perfect on down to the very poor.

In the second place, although both factors are essential, we may make one factor constant and thus attribute the differences solely to the other. Thus, when identical plants are grown under diverse conditions of heat and cold, sun and shade, moisture and dryness, their differences are due solely to environment. On the other hand, where different plants are grown in the same hot-house, or different kinds of eggs hatched by the same hen, the differences are due solely to heredity. In the third place, so far as men are concerned there is no ground for supposing that the environment can put something new into the genetic constitution; it cannot alter the genes. In no case, human, animal, or plant, can the environment produce traits for which there is no basis in the chromosomes. On the other hand and in the fourth place, certain potentialities of the genetic constitution cannot manifest themselves in the absence of a suitable environmental stimulus, as, we cannot tan unless we get the sun's rays. Likewise, a change of environmental stimulus may produce striking changes in the reaction of a given organic constitution, as noted in a later paragraph.

If we limit our discussion here to physical traits, leaving the mental traits to be more fully treated in a later chapter, we shall see that there are three groups of them as regards their susceptibility to environmental influence. There are first, those not measurably affected, such as eye-color and size and shape of head. Secondly, there are those only slightly but measurably affected, such as skin color. Thirdly, there are those greatly affected, such as the development of goitre in the absence of iodine in food and drinking water, of the hobnailed liver under the excessive consumption of alcohol, or of locomotor ataxia under the attacks of the syphilitic germ.

If we consider the general case, we may ask, what changes occur in plants and animals as we move from very good to very bad environments? There will be changes in size, in the development of particular parts, in the fruitfulness of plants and the fecundity of animals, and in vigor. The extent of such changes depends largely on the hardiness of the organism, since some will be highly susceptible to slight variations in environment while others will

show little effect from such variations. In every case, however, with the possible exceptions noted below, the organism develops its ancestral traits, so that the *general* nature, size, structure, and behavior of the organism is traceable to its hereditary factors. That is, whatever changes different environments may bring about, they cannot change dogs to cats nor men to monkeys. The genetic factors contain a more or less variable potentiality; if the environmental conditions permit this potentiality to express itself, at all, it does so along lines laid down by its own constitution.

Organic Plasticity and Organic Response. And yet, on the other hand, there are some striking cases of what is commonly called organic plasticity. By this is meant that the same set of genes will develop into quite different somatic traits under different environments. Thus, in the *drosophila* when reared in moist air, certain males manifest irregular, deformed abdomens; this defect is passed on as a sex-linked trait through daughters but not through sons. If, however, these same flies are reared in dry air the abnormality disappears. Here is a physical trait then which is dependent on the environment for its appearance, and which changes with change of environment. There are many such cases.¹⁸ How should they be interpreted?

It would be a gross error to say that the environment produces such traits in the sense of creating them. As already stated, the environment cannot call out traits for which there are no genes. Such traits as those just mentioned represent the *differential response of certain organisms to differences in their growth conditions*. To give another illustration: the Chinese primula, under usual out-door conditions of summer, produces red flowers, but if grown in a hothouse, produces white flowers. This illustrates the whole problem of the relation of so-called organic plasticity to environment. The differences of flower color are best viewed as differences in the *response* of the genetic factors to differences in conditions. The response of a given organism to given conditions is always the same, that is, the flowers of the primula are always white or red and never yellow or purple, showing that the hereditary constitution not only remains unaltered but sets definite limits to the effects of environmental changes. Moreover,

¹⁸ H. S. Jennings, *Prometheus or Biology and The Advancement of Man*, E. P. Dutton and Co., 1925, especially pp. 39-64.

these effects are peculiar to this plant; other plants subject to the same changes do not respond thereto at all, or may respond in quite a different way.

It would seem then that we should speak of differences in organic responsiveness rather than of organic plasticity when referring to such cases. It is true of all organisms that they develop more or less differently under different environments, but with respect to all cases of somatic modifications resulting from alterations of growth conditions the genetic constitution determines (1) whether or not there will be a response to a given environmental stimulus; (2) what the nature of the response shall be both as to kind and degree. There often appears to be no connection between the kind of stimulus and the kind of response, that is, there is no reason why the warmth and moisture should be associated with white flowers, except the nature of the organism itself. The same stimulus or condition may, therefore, produce a larger leaf in one plant, a stockier stem in another, and a change in color or size of blossom in another, all depending on the genetic constitution of the plant. It follows, (3) that the coördination of stimulus and response is determined by the nature of the organic constitution receiving the stimulus.¹⁹

All organisms are more or less plastic in the sense that they make somewhat different growth responses to different kinds of environment. Such modifiability of response to environmental stimulus is, however, less with the higher or more complex organisms, such as the mammals and man, than with certain plants and simpler animals. With higher organisms the hereditary constitution sets rather narrow limits to what can be accomplished in the way of gross bodily transformations by the utmost manipulation of the environment. The cultivation of domestic animals furnishes many illustrations. Hens of the game-fowl breed, for example, cannot be induced, even by the best of feed and care, to lay numerous eggs nor to put on the meat essential for a good roast. Poultry-men can secure good egg-laying flocks only by breeding for them. The Texas long-horn steer was not much good for either beef or milch production; but while the

¹⁹ For an extended discussion of these distinctions read the author's "Organic Plasticity versus Organic Responsiveness in the Development of the Individual," *Publications, Amer. Sociol. Soc.*, Vol. 22, 1928; and "Organic Plasticity versus Organic Response," *Social Forces*, Vol. 6, June, 1928, pp. 331-344.

Jersey or Guernsey is good for milk and butter fat, it is not much good for beef, regardless of how it is fed and cared for. Heredity thus sets narrow limits to what can be achieved through improvements in the conditions of life, so far as physical traits are concerned.

These illustrations bring out the primary difficulty in the study of the relative weight of heredity and environment. Both factors are always present, and in varying degrees, so that the effort to disentangle their effects seems hopeless. Some students hold that the effort is useless, because the two factors are in fact indissoluble. They very correctly point out that, on account of the differential responses of the individual, the heredity is actually different for every difference in the environment. Nevertheless, the matter is not without some possibility of clarification.

The Biometrical Method. It is here that the biometrical method proves valuable. It is specially designed to test the relative weight of the two sets of variable factors, heredity and environment, which lead to the measurable differences between individuals. As already stated, it does this by means of the coefficient of correlation, which is in effect a measure of the intensity of association between two sets of varying facts. By comparing the heights of fathers of different stature with the heights of their respective sons, this method arrives at a measure of the extent to which a change in height of the father produces a change in the height of his sons. Or, to express the matter more accurately, it measures the extent to which, on an average, a difference between the height of a father and the normal height of the men of the same social group tends to produce a like difference in the height of his sons from that same norm. This is an approximate measure of the force of heredity. We have seen that, for a considerable number of traits, the value of r is about 0.50.

In like manner, the biometrician compares the effects of changes in the environment on man's physical traits. He can thus discover what differences in the heights of children, for example, may reasonably be attributed to differences in their home environment; what effects on the stature or weight of children may be attributed to parental habits, such as the use of alcohol, or work by the mother away from home. Some of his correlations here are as follows:

Myopia and age at which children begin to read	— .08
Keeness of vision and time spent out of doors	.00
Eye disease and overcrowding in the home	+ .05
Weight of child and number of rooms occupied	+ .11
Weight of child and wages of father	+ .10
Stature of child and "unhealthy" trade of father	+ .07
Health of child and employment of mother	+ .08
Stature of daughter and employment of mother	+ .11
Weight of son and employment of mother	+ .11
Intelligence of son and employment of mother	— .16
Stature of child and alcoholism of parent	+ .06
Weight of child and alcoholism of parent	+ .06
Liability to tuberculosis and destitution of home	+ .02
Number of decayed teeth and use of toothbrush	+ .07

From numerous investigations Pearson concludes that the force of the environment may be measured by $+.07$ or less and of heredity by $+.50$, or that heredity is at least seven times as potent as environment in accounting for the physical differences between people belonging to the same race and living in the same communities.

Value of the Biometrical Method. This work of Pearson and his associates has aroused both great enthusiasm and great animosity; it must, therefore, be viewed cautiously. One of its most serious limitations is that it cannot be applied to simple dominant traits but is applicable to those traits only for which we may reasonably assume multiple factors. A similar limitation is seen in the fact that the somatic traits do not always agree with the genetic constitution. Thus in case of sex-linked traits a woman may not manifest hæmophilia but may pass the trait to half her sons. Correlation between physical traits of parent and child is no measure of inheritance in such cases. The same is true of recessive defects which do not show in either parent, but may appear in offspring when both parents carry the same recessive trait. Such limitations, however, are only limitations; they do not destroy the value of the method. It is, in fact, an indispensable method for measuring the *intensity* of heredity for many traits, including intelligence. Most of all, it is the only method yet devised for measuring the *relative weight* of heredity and environment in many cases. It is not, however, a method which can throw any light on the *manner* in which heredity works. This can be learned only by the tracing of Mendelian factors from generation to generation through the careful study of individual lines.

The most serious criticism leveled at the work of the biometri-

cians is that their original measurements were often loosely made. No doubt they often trusted to their mathematical methods to overcome defects in the original data. This was far from usually the case, however. Moreover, the results first achieved by Pearson have been corroborated by numerous subsequent investigations, so far as the correlations between parents and children are concerned. Much more work needs to be done with reference to the force of specific environmental conditions. We need not, as yet, accept Pearson's results as showing the full force of the environment for physical traits, though it is probably not far from accurate.

Mental Traits. With respect to the mental traits the problem of the relative importance of heredity and environment is far more difficult, because of the much greater plasticity of the mental powers. The fundamental principles are, however, the same as those above mentioned. The great and almost insuperable difficulty is to get satisfactory quantitative measurements of the highly diverse psycho-social environment which affects the human intellectual and emotional development, mental outlook, and habits. Here it is very helpful to make a fundamental distinction between individuals living in different cultures and individuals living in the same culture. We may say, for example, that whether we speak French or English as our mother tongue, believe in Christianity or Buddhism, or have strong emotional reactions toward the Stars and Stripes or the Tricolor, depends entirely on the social heritage amidst which we have been reared. If, on the other hand, we seek to determine whether heredity or environment has been more important in determining the level of success achieved by different individuals in the same community, then the matter becomes less clear. We may be sure that social environment, or opportunity, plays a large rôle in the success of some persons; that sheer luck accounts for the advancement of some others; but that hereditary ability is at the basis of the achievements of many others.

If we compare, for example, the children attending the public schools in a small American town, where the population is almost entirely of old New England stock, we shall discover that some of them are so dull that their teachers find them nearly or quite hopeless; the majority will be near the average, but there will also be a few who are so bright that they do their work with ut-

most ease or even skip grades without difficulty. Such differences in inherited capacity, just as differences in swiftness, physical strength, general bodily vigor, and health manifested on the playground by these same children, would also be traceable for the most part to differences in their hereditary constitutions. Moreover, the primary principle governing the relation of hereditary capacity to environmental opportunity is that *higher grades of ability not only learn faster but continue to learn longer*. If we were to follow these children for a term of years, we should discover that the dull ones drop out of school before the end of the fifth or sixth grade and become unskilled workers in the village or countryside. The brighter ones, on the other hand, will, for the most part, complete not only the grades, but the high schools as well, and some of them will go on to college, graduate work, and the professions. Thus differences in hereditary mental ability tend to produce that stratification of society which is so conspicuous a feature of even our democratic society.

In the accompanying chart (Figure 37) is an illustration of how mental level and occupational status tend to correspond. While these results of mental tests are rather uncertain indications of hereditary mental levels, they are the best we yet have. Moreover, they have greater reliability when comparing the averages of different groups than when comparing two individuals. In a competitive society, where education is free and universal, there is a greater tendency for the population to become stratified according to inherent mental levels and bodily energy than in a definitely caste society.

We may then summarize the relations of heredity and environment in the production of individual differences under four principles:

(1) For full development of the hereditary potentialities a favorable environment is essential. This is the sufficient justification of all our efforts to improve the social opportunities of the less fortunate. As Professor Wallin ²⁰ says: "The hereditary and environmental forces supplement and reënforce one another. Many persons who can float in a favorable environment, will succumb in a less favorable one, just as appropriate training in special classes will enable some pupils to function above the level of mental deficiency, who without such training would have

²⁰ *Op. cit.*, pp. 281-282.

stagnated as feeble-minded. Much crime and incompetence among weaklings is traceable to an unpropitious environment, and could be prevented by a vigorous community program of constructive euthenics."

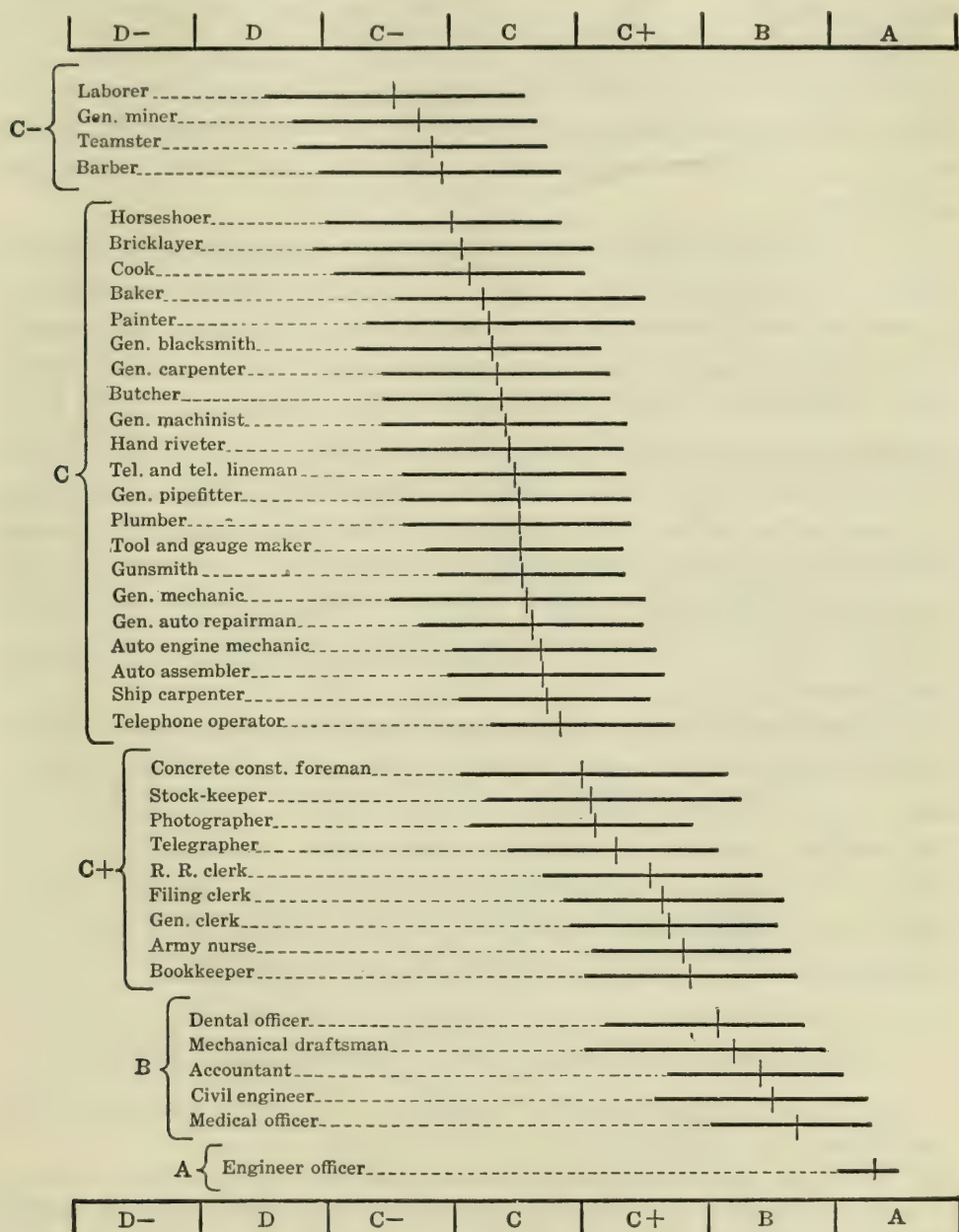


FIG. 37.—Mental test rating, of 18,423 men by occupational groups. The length of the bar indicates the range of the middle fifty per cent of each group. The crossbars indicate the median scores. How much of such social stratification is due to inherited mental level and how much to environmental factors is one of the most profound problems of the age. From *Memoirs*, National Academy of Sciences, Vol. XV.

(2) But the environment cannot create new physical traits or mental capacities. We may say, then, that inheritance sets the upper limits to the respective potential development and achievement of individuals in a given society, under the best of training and opportunity. This is clear if we contrast the possibilities of training for the moron, the normal, and the superior child. At the same time there may be enormous differences between the actual attainments of equally talented persons in quite different social media, where opportunity, training, and social stimulus are different.

(3) It is the hereditary endowment that determines the mental capacity, the aggressiveness, and the physical energy to *utilize the opportunities* afforded by the environment. It is for this reason that a gifted individual finds opportunity where another finds only obstruction. For individuals in the same community it is the organism and not the environment which is dynamic. While some individuals are thus able to emerge from what appears to be most unfavorable environments to the very heights of human achievement, others either sink to lower levels or continue the customary standards of their fathers. For the most part individuals remain in much the same relative positions in society as their parents.

(4) Looking at society in the large, we thus see a constant flux of individuals whose social status is affected by heredity, opportunity, and chance (accident, death of parent, good luck, etc.), but tending roughly to stratify along levels determined by the whole combination of their hereditary physical and psychic traits. There is a remarkable association of good stocks with good environments and of bad stocks with bad environments.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. Why do the officers show less variation in mental test scores than Native Whites?

2. Would the fact that chronic alcoholism, feeble-mindedness, and epilepsy are sometimes found in the same strains prove that alcohol caused mental and nervous deficiency?

3. Does it seem probable that birthmarks are due to experiences of the mother during gestation?

4. Why do plants moved from moist to drier climates modify their root and epidermal systems and then produce offspring of the new type? Is this not inheritance of acquired characters?

5. Is it not conceivable that drugs may be found, or possibly some use of the X-ray, which are able to produce specific modifications in the germinal constitution? If so, how would their action differ from that of alcohol?

6. How do chance combinations serve to explain the biological basis of genius?

7. How is Weismann's theory related to Galton's theory of regression?

8. Why do recessive traits continue in the race? How did they originate in the first place? Can they continue indefinitely?

9. Does heredity place an absolute limit to one's physical and mental capacities?

10. Are cousin marriages always deleterious?

11. Why do animal breeders closely in-breed domestic strains?

12. Does an organism ordinarily develop or express all the traits for which potentiality is carried in its germinal constitution?

13. If regression is a fact, why does not a population tend more and more to become uniform in stature?

14. Can you reconcile the Biometrical and the Mendelian methods of studying heredity?

15. What evidences are there that our society is more or less stratified according to inherent mental ability?

16. Is there such a thing as a "criminal type"?

17. What are the advantages and the disadvantages of the correlation method of studying the relative weight of heredity and environment?

18. How does the fact that pure Nordics do not tan, while most of us do, illustrate the principle of organic response?

19. In view of Mendelian principles, would it be possible to find among Europeans individuals with Nordic stature, Alpine head form, and Mediterranean complexion?

20. Is it true that "one drop of Negro blood makes a Negro"?

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CHAPTER VII

THE BIOLOGICAL FACTORS IN SOCIAL LIFE: FECUNDITY, STRUGGLE FOR EXISTENCE, AND NATURAL SELECTION

MULTIPLICATION AND SELECTION IN NATURE

General Significance of Reproduction. It is often said that nature is careful of the species but careless of the individual. The necessity of providing for perpetuation of its kind is as important for every species as the preservation of the individual. To a very large extent the meaning of life for the individual is found in the activities necessary to perpetuation. So fundamental is this necessity that it has been a controlling condition in the evolution of animal forms and ways of life. Not only must living forms be reproduced but they must be preserved from excessive destruction and maintained under conditions permitting them to reach maturity. Reproduction, therefore, in the completed sense involves also preservation, or protection and maintenance. There is thus involved in the perpetuation of every species, not merely some form of sex specialization, sex attraction, and courting, but also, in all the higher levels of animal life, some such institution as family, herd, or flock, within which the young are protected and matured.

The first "aim of nature" is, therefore, to preserve the species. To this end she is more concerned with the welfare of offspring than with that of parents. There are many cases, on the lower levels of life, where parents completely sacrifice themselves to reproduction. In the mammalian world, the instincts of parenthood are very highly developed and lead to that subordination of parents to offspring necessary to guarantee the rearing of the latter. In the case of man, nothing is more obvious than that the vast majority of human beings, throughout the whole of their mature and more vigorous years, are concerned in activities growing out of the necessities of racial perpetuation. Here is the biological root of family institutions, including as they do, not

merely all the rules and regulations relating to sex relations, both before and after marriage, but the provision of food, clothing, and shelter for offspring.

Fecundity in Nature. That ample provision has been made for the perpetuation of all forms of life is shown by the elementary fact that there is everywhere an excess potential power of multiplication. That is, every species of plant and animal is endowed by nature with a capacity to produce a larger number of offspring than can be brought to full maturity under the existing conditions of light, air, space, and food.

The final and complete scientific demonstration of this fact was due to Charles Darwin in his epoch-making work *The Origin of Species* (1859). But Darwin confesses to have received the suggestion of his theory from the reading of Malthus's *Essay on the Principle of Population* (1799). Malthus had pointed out that the fundamental cause of poverty was the tendency of man to increase in numbers faster than he can increase his means of subsistence. Even in a new continent like the United States, the numbers of the population in a few decades become so great as to increase the pressure for food and materials for housing, clothing, and the satisfaction of other human wants. Were this not so, men would not be engaged in a strenuous and continuous struggle for livelihood in which the majority attain only a very limited success.

Darwin extended these ideas to the entire plant and animal world; here also is a general tendency to increase in numbers in a geometrical ratio. As Professor J. Arthur Thomson remarks: "the river of life is always tending to overflow its banks."¹ A common British weed often has as many as 750,000 seeds. If allowed to multiply without elimination for three years, the whole of the earth's surface would not hold them. The oyster has as many as 60,000,000 eggs, with an average of 16,000,000. If all the progeny of one oyster survived and multiplied, in four generations the heap of shells would be eight times the size of the globe. Actually, however, there is, except under human cultivation, no general tendency for the number of oysters to increase; hence the mortality must be enormous. A common house fly lays eggs in batches of 120 to 150 at a time, and may lay five or six of these batches during a short life of three weeks in warm weather. Hux-

¹ *Darwinism and Human Life*, Henry Holt and Co., 1917, p. 80.

ley calculated that if the descendants of a single green fly all survived and multiplied they would, at the end of one summer, weigh down the population of China. The elephant is the slowest breeder among mammals, rearing one young every ten years. It lives, however, more than a hundred years, and Darwin calculated that, if all offspring lived and bred, a single pair would in 750 years produce 19,000,000 descendants. As Darwin says: "There is no exception to the rule that every organic being naturally increases at so high a rate that, if not destroyed, the earth would soon be covered by the progeny of a single pair."²

Individuation versus Genesis. It was in view of the different rates of reproduction in different species that Spencer advanced his thesis of the opposition between individuation and genesis.³ By this he meant that an increase in size and capacity for self-defense as we ascend the animal scale is accompanied by a decline in the rate of reproduction. The basic principles of his argument are (1) that the energy which an organism has at its disposal depends on the quantity, quality, and regularity of its food supply; and (2) that this energy may be utilized either for individual development and activity, or for generation and the care of offspring. In the evolution of animal forms, the higher animals acquired more and more effective means of self-preservation, either in the form of covering, teeth, claws, hoofs, and other physical structures, or in the form of instincts, leading to protective behavior. Such developments were accompanied by an increase in the average length of life, and this made unnecessary so high a rate of multiplication as that required where enemies were numerous and life was short. In this broad form, the thesis is nearly obvious. There is no necessity for elephants or man to multiply at the rate of flies or cod fish. If they did the earth would very quickly become encumbered with them. In its detailed application, the theory sometimes becomes difficult. Nevertheless, we may be sure that one of the reasons why man is such a slow breeder as he is, in comparison with some other animals, is that his unsurpassed abilities to take care of himself in conflict with other forms of life have made unnecessary any greater subordination of his individual activity to racial propagation. Like all other species, he shows in the adjustment of his rate of repro-

² *Origin of Species*, Chap. iii. "Struggle for Existence."

³ Herbert Spencer, *Principles of Biology*, Part VI.

duction to his length of life, one of the most interesting and significant of those adjustments of the form and manner of life to the essential conditions of its existence with which all nature abounds.

The Web of Life. Since the actual numbers of any species do not as a matter of fact become greater from decade to decade or from generation to generation, but remain fairly constant, increasing now but decreasing later, constantly fluctuating up and down about a normal number, it is obvious that there is a perpetual and often prodigious death rate for every plant and animal. There is a "balance of nature," by which is meant an approximate adjustment of the natural fecundity of each species to its death rate, so that a bewildering variety of plants and animals live together, instead of a few varieties occupying the whole of the land. But since all of them are producing an enormous number of seeds, thousands or even millions die in germ or in early life to one that reaches maturity and reproduces its kind. It is also obvious that there is a remarkable interrelationship throughout all forms of life. This has been called "the web of life."⁴ Plants utilize the substance and energies of physical nature, only in their turn to be utilized in sustaining the life and infinite variety of animal forms, which in turn contribute to the life possibilities of still other animals, while animals serve in countless ways to fertilize and cross-fertilize plant life. Higher forms of animals feed upon the lower, while man is one of the most omnivorous feeders in all creation, utilizing a very wide variety of both plants and animals for his sustenance. Thus there runs throughout nature a remarkable balance and coöperative interrelationship, no part of which can be disturbed without affecting for good or ill the life chances of many other living organisms.⁵

Life a Struggle for Existence. "A struggle for existence inevitably follows from the high rate at which all organic beings tend to increase."⁶ A striking illustration is to be found in W. H. Hudson's *Naturalist in La Plata*. He points out that the summer of 1872-1873 in the La Plata valley was remarkably favorable to the growth of life. There was rain and sunshine;

⁴ Thomson, *op. cit.*

⁵ Hermann Reinheimer in his *Evolution by Co-operation: A Study in Bio-Economics*, E. P. Dutton and Co., 1913, has discussed the remarkable solidarity throughout organic nature.

⁶ Darwin, *op. cit.*, Chap. iii.

there resulted an abundance of blossoms; bumble-bees multiplied apace; and in consequence field mice, which lived on the bees, swarmed everywhere. "In the autumn the earth so teemed with mice that one could scarcely walk anywhere without treading on them; . . . the dogs subsisted almost exclusively on them; the fowls also, from incessantly pursuing and killing them, became quite rapacious in their manner." Cats, weasels, foxes, opossums, and even the armadillo found food in abundance. Storks and short-eared owls likewise flourished; the latter became destructive of birds as well as of mice. "A singular circumstance was that the owls began to breed in middle winter." Nevertheless by August of the following summer the owls had vanished.

Wherefore this remarkable change? The answer is found in changes in physiographic conditions which had resulted in cutting short the almost unlimited food supply of the previous season. The winter had been dry; the grass and herbage had been consumed by cattle and wild animals; the mice, deprived of food and cover, had well-nigh disappeared, and in consequence the entire scheme of life for the cats, the foxes, the owls, and the other species that had flourished on the lower forms of life was upset. They perished in great numbers.

This is a somewhat unusual instance, but it epitomizes vividly the excess of fecundity, the web of life, and the struggle for existence in which the entire organic world is engaged. Super-fertility rapidly fills to the utmost every crevice in nature where subsistence can be found. Even the desert sands and the arctic snows are said to swarm with life. Obviously, therefore, every unfavorable change in climatic conditions and every reduction in food intensifies plant and animal mortality. But every creature is tenacious of life and struggles to maintain its own existence. As J. A. Thomson, following the lead of Darwin, indicates,⁷ this struggle takes three constant forms. There is, first, the "struggle between fellows." "When the locusts of a huge swarm have eaten up every green thing they sometimes turn on one another." There is cannibalism among the fishes; and frogs often eat tadpoles. In every habitat, plants struggle with one another for space, light, and nutriment, while animals compete with their own kind for food and shelter. It is because individuals of the same species require similar food and other life conditions that,

⁷ *Op. cit.*, pp. 73-75

whenever a life and death struggle among them occurs, it is especially severe.

There is, secondly, the "struggle between foes." In the above illustration the mice preyed upon the bees, the owls upon the mice. Throughout the earth the carnivores prey upon the herbivores, birds of prey devour small mammals, and small mammals live largely upon insect life, while insects, parasites, and microbes thrive everywhere. And there is, finally, the "struggle with fate." Thus plant life is affected by changes in moisture and temperature; bird life succumbs to the winter's cold; insects, reptiles, birds, and mammals die by the millions from drought, excessive rainfall, excessive heat or cold, and fire and flood.

Natural Selection. There is thus a constant elimination in every plant and animal species of those less well-adapted to life conditions, whatever these may be. "Owing to this struggle, variations, however slight and from whatever cause proceeding, if they be in any degree profitable to the individuals of a species, in their infinitely complex relations to other organic beings and to their physical conditions of life, will tend to the preservation of such individuals, and will generally be inherited by offspring. I have called this principle, by which each slight variation, if useful, is preserved, by the term "natural" selection, in order to mark its relation to man's power of selection, *i. e.*, "artificial" selection. But the expression often used by Mr. Herbert Spencer of the "Survival of the Fittest" is more accurate, and is sometimes equally convenient." ⁸

By the "fittest" in the above quotation is meant those best adapted to live under given conditions. These conditions vary enormously from ocean depths and mountain highlands to tropical forests, from arctic snows and pestilential swamps to arid desert sands. The *nisus* of nature seems infinite, because life has taken on an infinite variety of forms adapted to practically every combination of climatic, physiographic, and organic conditions on the globe. The "fittest to survive," therefore, have only one supreme test, namely, adaptation. It is here swiftness, there ferocity, yonder a heavy fur coat and elsewhere some other peculiarity of foot, leg, neck, or other bodily part, some highly complex instinctive adaptation, some speciality of function, some super-keenness of sight, smell, touch, or intelligence, which be-

⁸ Darwin, *op. cit.*, Chap. iii.

comes an all-important factor in prolonging life and enabling its possessor to reproduce its kind. It is the best adapted who are fit, and hence survive; the ill-adapted are selected out for elimination.

The great significance of the theory of natural selection, therefore, is not that it explains how new types or varieties of plants or animals come into existence; that is explained by mutation. Darwin explained *how and why new types are preserved, not how they originate*; he showed why there is such a marvelous adaptation of plant and animal to habitat. Indeed, one must extend the operation of natural selection from whole organisms to any and every part of them. It applies to the truly remarkable adaptations of structure to function which make every organism an effective unity. Finally, it affects also the almost miraculous adaptations of instinct and inherited capacities and predispositions of every insect, bird, reptile, and mammal to their life needs. As Professor Conklin says: "The origin of fitness rather than the 'origin of species' is the greatest problem of the world of life, and it is the crowning glory of Darwin's theory that it offers a mechanistic solution of this eternal problem of life and evolution."⁹

We may now see the significance of mutations in relation to the evolution of new species. They give natural selection new materials to work on. If a mutation occurs, for reasons yet unknown, selection determines its survival, if it is advantageous under the existing conditions; or its elimination, if it is disadvantageous. It is, thus, through the combined operation of mutations and selection that new varieties are formed and that the infinite adaptability of life is achieved.

There are three primary kinds of selection: *lethal, sexual, and reproductive*. The first shows itself in differences of death rates; the second in differences in finding mates; and the third in differences of birth rates. In order to avoid elimination by selection, an individual must live well into maturity, find a mate, and leave offspring. These three forms combine to express themselves in *net fertility*, that is, the differences between the births and the deaths of different strains or types in the same population. We return to this below where we indicate also the operation of group and social selection in man.

⁹ E. G. Conklin, *The Direction of Human Evolution*, Charles Scribner's Sons, 1923, p. 223.

Artificial Selection. Artificial selection is the term applied to the use by man of the processes of variation, heredity, and selection to produce new strains of domestic plants or animals or improve old ones. Nature's methods are slow, wasteful, and haphazard; man can achieve equal results quickly, economically, and directly. By seizing upon favorable or useful mutations, by breeding solely from the best stock, by cross-breeding and selection, he has accomplished marvels with every important cultivated plant or animal. One of the greatest sociological questions is that of eugenics, or the conscious improvement of the human breed by the application of our knowledge of heredity to human mating and reproduction. (See below.)

MULTIPLICATION IN THE HUMAN SPECIES

Primary Importance of Race Perpetuation. We noted above that reproduction is one of the first necessities of living things. Man is no exception. This necessity is the key to much of the comedy and tragedy of life. Youth is equipped with superior vigor, health, and powers of recuperation, with powerful instinctive drives, and with the freshness and bloom which appeal to the opposite sex, all as guarantees of racial preservation. In the economy of nature, the grace, suppleness, and beauty of youth serve to entice the individual to mate; mating leads to offspring, the arousing of parental instincts, and the shouldering of the responsibilities of life. From the early teens when courting and love-making begin until well past middle life, the vast majority of people are in this manner harnessed to the primary exigencies of racial perpetuation. When the philosopher declared that love and hunger rule the world, he uttered an elemental maxim of social philosophy. The statement implies vastly more than that love and hunger are the two fundamental drives to individual activity. It is quite as important to see that love leads to multiplication, and that this in turn involves parents in the necessity of laboring in order to appease the hunger of those whom their love has created. Thus, the family becomes the basic social institution. Not only does it control and regularize the love-life of the majority of men and women, but about it center also their labor-life and their hopes and ambitions. It even becomes the agency for their own care in advancing years.

Social Significance of Increase in Numbers. Problems of population may be treated from the standpoint of either quantity or quality. The student will observe, however, as he reads, that these two aspects overlap and intertwine in many respects. In a broad way, the quality of a population is, in the long run, determined by the relative rates at which different strains in it multiply. In our own day, it is becoming altogether too clear that extremely low birth rates at the top of society and high ones at the bottom are almost certainly leading to a deterioration in the quality of the population. Throughout human history a too rapid rate of multiplication has been a perennial cause of poverty—even of famine and pestilence. In our own time, it leads to unemployment, excessive competition of labor, and the degradation of the lives of the working classes. Closely related thereto is the necessity of charity, philanthropy, and institutions for social amelioration among the rapidly growing elements of the population. It may also be asserted that social revolutions are at least indirectly related to birth rates; that is, the rapid growth of some social classes and the slow growth of others tends to upset the balance of law and custom. The elevation of the status of woman, of public intelligence, and of standards of living, and the increased refinements of life are largely dependent upon popular customs and practices related to growth of numbers, such as age of marriage and size of family.

The rate of increase of different population elements also has a fundamental bearing upon the perpetuation and dissemination of culture. The large families of the old New England stock in the nineteenth century not only populated the Middle West and the Pacific Coast with descendants of New England colonists, but carried the fundamental elements of the Puritan and early American traditions across the continent. Similarly, in our own day the rapid development of French-Canadian, Polish, and Italian elements in the New England population is displacing Protestantism with Catholicism, Republicanism with Democracy, and transforming not only the political and economic life of the New England cities, but of the New England countryside as well. Finally should be mentioned the fact that the difference in the rate of population increase in different nations is a perennial cause of war. The uneven pressure of population in different areas tends repeatedly to disturb the balance of power in the world at large.

The low birth rate countries are under the present necessity of preventing the excessive surplus from the high birth rate countries flowing into their borders with disastrous effects upon their internal peace and economic life.

Fecundity and Fertility. It has long been customary in studies of population increase to distinguish between fecundity, or *the potential* powers of multiplication, and fertility, or *the actual* rate of increase. Among plants and animals in nature the fecundity is closely approximated by the fertility through the fact that nature provides for the fertilization of nearly every egg. In man, however, the whole of the reproductive relationships are so extensively surrounded by conventional control and regulation that the full fecundity is far from utilized. A Scotch physician and statistician, J. Matthews Duncan,¹⁰ estimated that a normal woman marrying at age eighteen should on an average produce fifteen offspring. The fact that such rates were not only common, but frequently exceeded a century ago in this country, and still are by the French-Canadians, indicates that the potential fecundity of man is certainly not less than two or three times that of the actual rate of multiplication at present in civilized countries. It is clearly established that fecundity varies with age in both sexes. Consequently, the fecundity of marriage varies with the ages of both husband and wife and particularly with the age of the latter.

The recent elaborate investigations of Professor A. M. Carr-Saunders¹¹ have established, almost beyond peradventure of doubt, that the natural fecundity of primitive peoples is considerably less than that of peoples living in a state of advanced civilization. These findings have given rise to considerable speculation, because it has often been assumed that primitive peoples had not only an unrestrained but a very high fecundity. Several reasons may be advanced, however, to explain this fact. Man is, in some respects, as Darwin indicated in *The Descent of Man*, a domesticated animal, the only one that has domesticated itself. In consequence of this, men living in an advanced state of civilization have a more abundant, regular, and nutritious food supply than the less highly domesticated tribes. He has,

¹⁰ *Fecundity, Fertility and Sterility*, Edinburgh, 1866.

¹¹ *The Population Problem. A Study in Human Evolution*, The Clarendon Press, 1924.

therefore, not only a larger supply of energy, but also a more regular one. Moreover, he is better housed and clothed, and otherwise more perfectly protects himself from the changes and inclemencies of the weather. Less of his energy is drawn off in withstanding the heat and cold against which less cultured races have little protection. He is, consequently, notable for the constancy, range, and variety of his activities. In fact, activity for its own sake is an important pursuit of highly civilized groups. Correlated with this large fund of bodily energy, is a more constant stimulation of his reproductive instincts, resulting in higher fertility. Whereas among primitive peoples as many as six offspring for a given couple would be rare, there are many women in Europe and America who have given birth to twice or thrice that number.

It should be added here, however, that the increase in fecundity in consequence of improved material culture apparently reaches a maximum and then declines. This decline would seem to be a result of the increasing complexity of social life. Such complexity is accompanied by constant stimulation of the nervous system and the utilization of bodily energies in numerous and diversified activities. The multiplication of personal contacts, the effort to meet the demands of a more pressing, more exacting, and more varied social life, together with the stimulation of ambition to achieve worldly prestige, tend to reduce the energies available for reproduction. There is ground for supposing that such facts explain, in part, the larger proportion of sterile unions and one- and two-child families among the upper, as contrasted with the lower, classes in our own society. If so, we find in them another important aspect of the opposition of individuation and genesis mentioned above.

Fertility in Man. Every race of people, both primitive and advanced, is found to make some effort to adjust its rate of increase to its natural resources. Such adjustment is accomplished in two ways: first, by the prevention of increase, and secondly, by an elimination of excess numbers. Among primitive peoples, the rate of multiplication was very often reduced by celibacy; by restrictions on the age of marriage; by the long periods during which mothers nursed their young (frequently two or three years, and sometimes five or more); and by various taboo periods during which sex relations were not permissible. They eliminated excess

numbers by abortion and by infanticide, especially of females; by infant exposure; by killing the aged; and by religious sacrifice. Among peoples at all times, there is more or less enforced or induced celibacy, some restrictions on the age of marriage, and more or less extensive practice of infanticide and abortion, either approved or condoned. Everywhere also the population is kept within limits by disease, famine, and war.

Malthusianism. The discussion of such problems during the past 125 years has centered around the validity of the Malthusian doctrine. This doctrine was set forth by the Reverend Thomas R. Malthus (1766–1834) in his famous *Essay on the Principle of Population* (1st ed., 1799, 2d ed., 1803). He pointed out that there was a constant tendency for man to multiply so rapidly that his numbers continually press upon his food supply. He showed that the American colonists, for example, had doubled their numbers by natural increase in twenty-five years. It was easy to calculate that at such a rate of increase the numbers of men would in a few centuries become so great that there would scarcely be standing room. Malthus held that it inevitably followed as a consequence of these rapid rates of multiplication that man would find it impossible to reach a highly perfected state of existence unless he could bring his reproductive powers under greater control. He pointed out that there were two kinds of checks upon the population increase—the positive and the negative, or prudential. The *positive* checks include all those conditions which tend to eliminate excess numbers, such as poverty, famine, pestilence, war, and crime. The *negative* checks are those which tend to reduce the fertility, such as celibacy, the postponement of the age of marriage, and restraint within the marriage relation. The positive checks kill people off after they are born, while the negative prevent their being born. In this connection he pointed out that the standard of living exerts a powerful influence upon the age of marriage and ideals of the family, and thus greatly affects the rate of increase of different elements in the population. He connected early marriage and large families with poverty, but on the other hand feared lest celibacy would lead to vice and irregular sex relations.

The Validity of Malthusianism. Since Malthus wrote his *Essay*, an enormous amount of discussion has centered around the validity of his doctrines. During the early part of the nineteenth

century, his doctrines were very widely accepted and gave rise to extensive social pessimism. It was believed that since poverty and severity of struggle seem to be the inevitable lot of a large proportion of mankind, efforts at social improvements are well-nigh useless. Malthus and others discovered that the "law of diminishing returns" applies to agricultural pursuits, that is, that, in any given state of the arts, the production of additional amounts of food and raw materials requires a disproportionately increased amount of labor and capital. This was referred to as "the niggardliness of nature," for it appeared that, once a country is populated, the food necessary to support increasing numbers could only be secured by either (1) more intensive labor or (2) continued improvement in the arts of cultivation. It was not at that time believed possible to improve these arts as rapidly as the population would increase. Consequently, economists promulgated what is known as "the iron law of wages," or the theory that any improvement in food resources or wealth would be at once followed by an increase of marriages and births and a decrease of deaths, so that there would soon be as much poverty as before.

By 1850, however, the standard of living in England had improved, and the hours of labor had been shortened. These results followed two major causes, namely, (1) the increased utilization of machinery and the factory system, often operating under "the law of increasing returns," and (2) the settlement of the Americas, with consequent room for expansion and enormous additions to the supplies of foods and raw materials. The subsequent increase in wealth and steady elevation of the standard of life turned the earlier pessimism to an ever-increasing optimism. By the opening of the twentieth century, optimism regarding the future of man was as rampant as pessimism had been a century earlier.

It was pointed out that the progress of science, the improvement of industrial technique, the utilization of mechanical power, and the applications of chemistry to agriculture and industry had made the standard of life for the average man several times as high as it was when Malthus wrote. Moreover, this had been achieved in spite of the increase of the white stock of mankind by several hundreds of millions. In addition, Neo-Malthusianism or birth control, that is, the conscious limitation of the size of the

family, was reducing the rate of population increase in certain western European countries and the United States. It was in consequence of this brightened outlook for the amelioration of the conditions of the laboring classes that many economic and social reforms were carried through successfully, such as protective legislation against dangerous trades, industrial poisons, and accidents, provision for old-age pensions, and insurance against sickness and unemployment. At the same time there was a revival of social utopianism. In mild forms, this envisaged a six-hour day and garden cities for workers; in the more extreme forms of socialism and communism, it envisaged the complete transformation of industry from a competitive and profit-seeking basis to a coöperative production for use only.

Even before the Great War, however, it was becoming evident that various countries were becoming rather congested in population, and that the room for expansion was far less than it had been a century earlier. Numerous scholars and statesmen had pointed to the threat of war contained in the rapidly growing populations of various countries. In 1912, Professor E. A. Ross expressed the matter very picturesquely: ¹² "One needs but compare the population pressures in France, Germany, Russia, and Japan to realize that, even to-day, the real enemy of the dove of peace is not the eagle of pride or the vulture of greed, but the stork!" But he might also have added that the gifts of the stork tend to inflate the eagle's pride and aggravate the vulture's greed. During the war, various German leaders asserted that Germany needed more territory for her rapidly growing population, while various British statesmen declared that it would be impossible to maintain the none too high standard of life of the British worker, unless Great Britain could retain and steadily increase her international trade. Some of them even declared that Britain was over-populated, and that either millions of people would have to migrate, or the standard of living would have to be lowered. The war definitely changed the current of opinion and again produced a fear of population excess among many students of such matters.

Revival of Malthusianism. This revival of Malthusianism was based upon the following considerations. First, all western countries have become densely populated. Whereas, in 1750, there

¹² *Changing America*, The Century Co., 1912, p. 47.

were probably not more than 175 million persons of European racial stock in the world, there are now at least 675 millions. In a little over a century, the white man has added about one-half a billion to his numbers. In the second place, the population of the world was shown to be increasing faster than at any time in human history. Professor Edward M. East estimated that the total annual increase in the world's population was somewhere between 12 and 15 millions, and that of this increase distinctly more than two-thirds took place among the white nations. (Figure 38.)

Even the United States, which had for generations been the land of opportunity and the mecca of migrating millions, quite suddenly and rudely awakened to the fact that it was getting full of people. In the years immediately before the war, we had relieved population pressure in Europe by the migration of about a million a year to our shores. Immigration restriction here, therefore, has been fraught with momentous consequences for certain European countries, notably Italy. But there was sufficient justification for the new policy in the figures of population increase alone. Whereas we had only 76 million people in 1900, we had 114 million in 1925. This was an increase of 38 million, or 50 per cent, in twenty-five years. In 1911, a normal year, there were about 2,300,000 births and about 1,300,000 deaths in this country, but in 1924 the excess of births over deaths was over 1,300,000. At this rate, we shall have more than 150 million people by 1950. The birth rate has been falling for several generations, but so has the death rate. In the future it seems nearly certain that the excess of births over deaths may diminish, but this in itself need cause no alarm. Both Professor Pearl and Professor East have estimated that the maximum population which the United States can sustain at the present level of food consumption is about 200 millions. As a people we shall not have difficulty in filling our territory; the problem for sober thought is how to fill it with people of better quality, on an average, than those here now.¹³

In the third place, there were no longer any vast unoccupied continents into which this enormous annual influx of new human beings could overflow. Whereas, in 1800, North and South

¹³ Cf. East, *Mankind at the Crossroads*, Charles Scribner's Sons, 1921, especially Chaps. iv and v; Pearl, *Studies in Human Biology*, Williams and Wilkins Co., 1924, Chap. xxv; Ross, *Standing Room Only*, The Century Co., 1927.

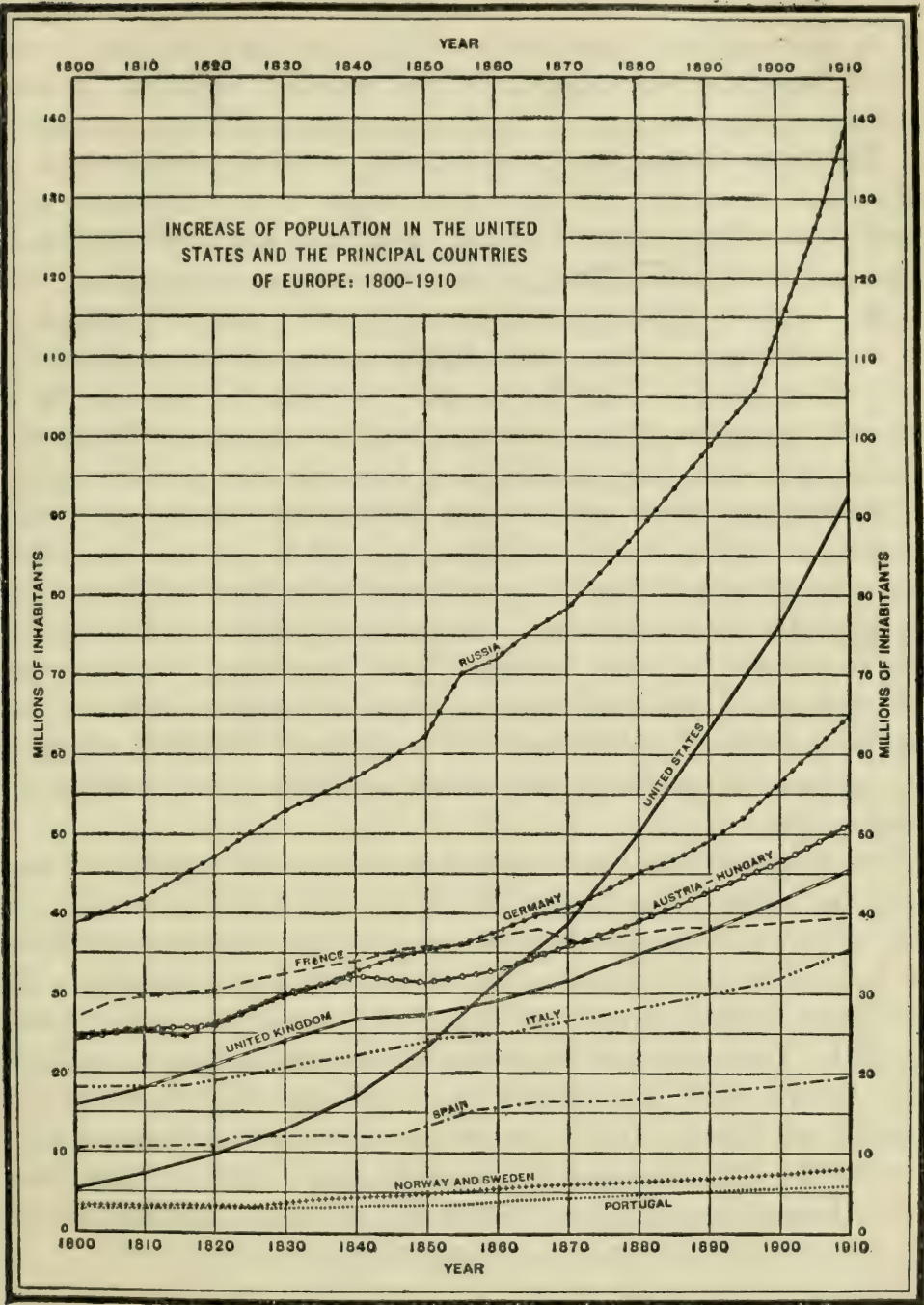


FIG. 38.—Growth of population in various countries, 1800-1910. From *Thirteenth Census of the United States*, Vol. I, p. 35.

America, Australia, South Africa, and large parts of Europe were either wholly unsettled by white men or still very sparsely settled, all of these areas are now rather fully, if not densely, populated. There remain, as unoccupied territories, only parts of Canada, the less attractive parts of Australia, parts of Siberia, and parts of the Congo Basin in Africa. None of these areas appears as attractive as did the Ohio and Mississippi valleys a century ago. Regardless of their future development, it seems clear that mankind has reached the limit of that free and easy expansion into virgin territory which constitutes the idyllic phase of nineteenth-century history. That was, indeed, a period of unparalleled population release. It was, in some respects, an approach to a physical paradise for an unusual number of men. Food was abundant and of good quality, and large families a source of parental pride and even profit. An addition to the family was looked upon as an evidence of God's favor, whereas to-day such an event often contains a threat to accustomed standards of living, not infrequently is a source of neurotic and psychotic disturbance, and is avoided by large sections of the population. It is the increasing populousness of western nations, together with the desire to continue the advancement of material comforts, which is at the basis of profound alterations in ideals of sex and family institutions.

The future of the white race, however, seems secure. It now possesses such vast areas of the globe, including those that are still relatively under-populated, and is increasing several times as fast as all the colored races of the world put together. Its continued possession and peopling of its present territories seems assured. There seems to be no danger, at any time in the foreseeable future, that the colored races will seriously threaten the security of Europe or the Americas. But, we may expect barriers to the free migration of people from one country to another to be raised by all nations achieving a higher standard of life than their more prolific and redundant neighbors.

Offsetting the rapid increase in population, civilized man has only one permanent reliance, namely, the further applications of science to natural resources. There is consequently much speculation as to the possibilities of more intensive agriculture, more perfect fertilizers, the manufacture of synthetic foods, the use of artificial products in place of vegetable fibers for clothing, and

similar advances. There are, doubtless, immense possibilities which we can now only dimly foresee, such as the manufacture of synthetic foods directly from raw organic and mineral products and the expansion of the food, vegetable oil, wood, and fiber resources of tropical countries. It is, however, unwise to be sentimentally optimistic regarding these possibilities. Reasoning in the light of the past and on the basis of what is actually seen and known at present, an intensification of the struggle for existence among western nations seems highly probable within the next two generations. This would give rise to increased international jealousy and probability of open hostility. It would be accompanied by a revival of the Malthusian positive restraints upon population, namely, poverty, vice, disease, and war.

Lack of National Balance. The rapid growth of population during the past century was accompanied by an unparalleled growth of cities. This was due primarily to two basic factors, the growth of medical science, and the development of the mechanical arts in transportation and manufacturing. Since these latter industries operate largely under the "law of increasing returns," it has been possible to employ the increasing population more profitably in them than in farming and other extractive industries. Moreover, the application of science and machinery to farming has made it possible for smaller and smaller proportions of the population to raise the food and raw materials necessary. At the same time, the opening of the resources of the tropics has furnished both sources of food and factory materials and markets for the industrial nations.

It has resulted from these and other conditions that all the industrial nations have become more and more urban. In England, the oldest of the industrial nations, 80 per cent of the population lives in cities; in Germany, over 60 per cent; and in this country, over 50 per cent. Now, all industrial countries become importers of food and exporters of manufactured products. England, to-day, never has more than a few weeks' supply of foods on hand; Germany imports a quarter of her necessary food; even the United States, which was the granary of Europe during much of the nineteenth century, is now importing as much in food values as she exports. Russia and eastern Europe export food to western Europe now, but they are undergoing the process of rapid industrialization and will gradually cease to have food surpluses.

One wonders, therefore, where the extra food is coming from for the growing urban populations of the world, when all nations of any importance have adopted the factory system. Meanwhile, the great powers find themselves involved in imperialistic policies for the control of markets and sources of the food and raw materials which their great industries have made imperative. England thinks she must have a navy large enough to control the seas, lest a hostile power may some time blockade her ports and reduce her population to famine and pestilence. Thus, the lack of balance within these nations between their food-producing and their food-consuming populations forces them into aggressive policies in international relations. Not only the prosperity, but the very livelihood, of their people seems to require that they seize and hold by force every undeveloped territory and every economic advantage possible.

It is commonly thought that imperialistic policies are due solely to the greed of the great corporations and their financial backers. This is true superficially. But back of the desire of the capitalists are the needs and the advantages of great populations. The Labor Party in England is compelled by the necessities of the situation to be nearly as imperialistic as the Conservative; the population generally supports the big navy policy. Capitalism makes an entire nation a highly integrated unit. Under the impetus, therefore, of patriotic sentiment, the people of any nation would rather, in last analysis, fight for the maintenance of their standard of living and their economic advantages in the future, than to lower their standard or surrender advantages to other groups. Here, then, is the constant threat of war in the modern world. Its avoidance would seem to require two statesmanlike policies: (1) the maintenance of a healthful proportion between rural and urban populations within each country; and (2) the organization of an international authority able to adjust the rival claims of the powers in the further exploitation of the globe.

Emigration as Relief of Population Pressure. It is often naïvely assumed that the surplus population of any area should migrate to other areas. A moment's reflection will show that such a policy can at best afford but temporary relief, in the absence of policies of birth restriction. The United States, for example, received millions of immigrants from Europe, and thus no doubt afforded her a considerable relief. But we could not

continue indefinitely such a policy, without becoming as crowded as Europe herself. Furthermore, such relief was not extensive. We received something over 30,000,000 between 1820 and 1920; meanwhile, Europe added nearly ten times as many to her own population. Italy can scarcely relieve her population pressure when her births exceed her deaths by more than 500,000 annually. Japan, with an annual excess of births of about 700,000, is in a similar situation. Nevertheless, both countries are encouraging an unrestrained multiplication. They are thus laying the basis either for future wars of aggression, or for the future poverty and misery of their peoples; possibly for both. There is no permanent relief for excess of numbers, except a rapid increase in the practical arts, or birth control. In the end the latter will be found necessary in every case.

Neo-Malthusianism. In the light of these facts, it must be said, therefore, that the spread of birth control is one of the most promising movements of modern times. It represents the application of scientific knowledge and rational control to one of the fundamental conditions of human happiness and welfare. Like all social advances, however, it involves also some social dangers; even science, although it has shown man how to control nature in a thousand beneficial ways, has also shown him how to make war in ways a thousand times more destructive than any known to his medieval ancestors. The purposeful and effective regulation of the size of the family is, in fact, the most momentous influence affecting the present life and future development of western nations. There is, for example, considerable probability that birth control will alter the social standards regarding sex relations and family responsibility. It has already done so, not always in ways advantageous to the perpetuation and solidarity of the social group. It enables certain types of men and women to escape the responsibilities of parenthood. It accentuates selfishness and the mad pursuit of pleasure and luxury.

But the greatest danger of all is seen in the fact that it has brought about a tendency for the more able and successful elements in the population to die out, leaving the race to be propagated by the less capable and less successful. Children are an encumbrance to ambitious individuals, especially to women seeking careers. It is a notorious fact that the graduates of American colleges are not self-perpetuating. Careful statistical studies

of the graduates of various eastern colleges have shown that an astonishing percentage never marry, that large numbers of those who do marry remain childless, and that few of the others have more than the three or four children which represent the necessary average for racial perpetuation. On every hand there is evidence that those family strains which have achieved financial and social success and have sent their children to American colleges are not perpetuating themselves. Among them knowledge of family limitation is well-nigh universal, and the incentives to its use, under present social conditions, irresistible. Meanwhile, recent immigrant stocks, especially the Poles, French-Canadians, and Italians, all of Catholic religious adherence, multiply apace. Worst of all, as we have already seen, the obviously defective and dependent elements, supported largely by public and private philanthropy, have families comparable to those of a generation ago and are enabled to preserve their offspring from the early deaths which more rigorous social conditions would produce.

It must be said, however, that the most effective and most intelligent remedy for such harmful tendencies is the spread of more effective birth control knowledge among the more ignorant elements of the population. Investigation shows that vast numbers of working class mothers, now ignorant of any means of regulating the number of their offspring, would welcome knowledge enabling them to adjust the sizes of their families in a reasonable manner to their incomes. Eugenic pessimists have often declared it to be impossible to check the rapid increase of the less capable, but the matter is far from hopeless. At the recent World Population Conference at Geneva it was reported that, in two cities where birth control knowledge has spread to all ranks of the population, the birth rate among the industrial classes was little higher than among the professional and business classes. It was claimed that even this small excess was more than offset by the higher infant mortality among the workers. There would seem to be no doubt that the disproportion between the rates of increase of different layers of the population can be very greatly reduced. It may conceivably be reversed so far as it relates to population quality.¹⁴

¹⁴ For a most excellent discussion of the political and ethical aspects of birth control, see Harold Cox, *The Problem of Population*, G. P. Putnam's Sons, 1923, Chap. vi; for extensive collections of data and opinions, see the reports of the British National Birth Rate Commission, *The Declining Birth Rate, Its Causes and*

High Birth Rate and Low Birth Rate Nations. The extensive reduction of the birth rate by artificial means may, however, go so far as to bring about an actual decline of population in the more highly civilized areas. During the past twenty years the birth and death rates in France have just about balanced, the deaths sometimes exceeding the births, even before the war. This aspect of the matter becomes especially significant in view of the very great differences in the rates of increase of different

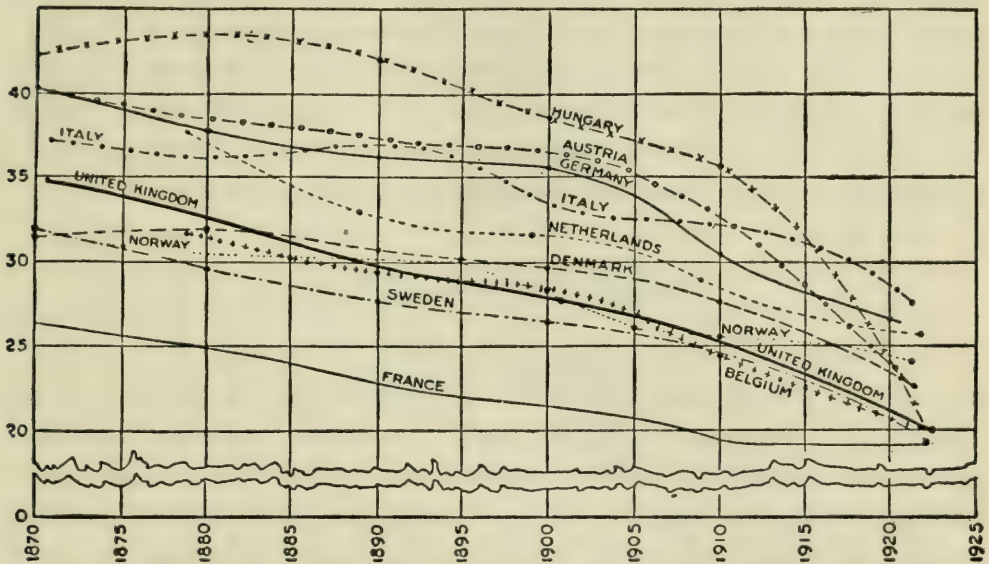


FIG. 39.—Graph to illustrate the declining birth rate of Europe. Death rates have also declined, and to much the same extent. These are the rates per 1000 of the population. Accurate data for Russia and the Balkan countries are not available, but their rates are known to be high relative to those of northwestern Europe. From R. M. MacIver, in *Population Problems*, Houghton Mifflin Company, 1926, by permission.

countries. The decline of the birth rate is everywhere associated with advances in the standard of living and the widespread realization that numerous offspring may involve parents in life-long hardships. The pressures of life in urban environments are especially potent in bringing about birth restriction. Popular education, the decline of religious controls, the increased freedom of women, and the intensification of the desires to increase material comforts all operate more vigorously in the advanced capitalistic countries than elsewhere. Such facts bring out the permanent

Effects, 1916, and *Problems of Population and Parenthood*, 1920, London, Chapman and Hall; see also the collection of essays, *Population and Birth Control*, ed. by E. and C. Paul, Critic and Guide Co., 1917.

truth in the Malthusian theory, namely, that human fertility everywhere, regardless of the state of culture, *presses hard upon the standard of life*. (Figure 39.)

There results from the differences in the standards of life a striking difference in birth rates, for example, between eastern and western Europe. There is also a difference in death rates, but the Russian, Serbian, Bulgarian, and Italian populations are growing much more rapidly than those of France, England, and Germany. Such unequal increases disturb the balance of world adjustments. They show the impermanency of any kind of world stabilization, and raise the question whether western Europe may not again, in the distant future, as it was fifteen centuries ago, be overwhelmed by invasions from the east. One can only speculate as to the outcome of such population trends.

STRUGGLE FOR EXISTENCE

The foregoing facts bring out clearly that man, like the rest of organic nature, is engaged in a struggle for existence. This struggle is perennial. While, on a superficial view, it scarcely affects the comfortable classes and operates with ostensible vigor among the lower classes, it is nevertheless true that all classes are deeply involved in the biological processes affecting the perpetuation of their kind into the generations to come. In its broadest sense, the struggle for existence does not mean merely the necessity of effort and intelligence in order to secure food, clothing, and shelter. It implies also the competition for mates, the number of offspring, the rate of death, and all other factors which influence the numbers which different strains of the population add to the next generation. All classes of society find themselves engaged in a struggle with nature not merely for the essentials of existence, but also in resistance to climatic conditions. They are also engaged in a competitive struggle with each other, not so much for the mere means of existence as for the means of maintaining a standard of life, and for mates. They are also engaged in a competition of class with class, racial element with racial element, and nation with nation.

The struggle for existence, thus interpreted, has been and still is a powerful factor in the shaping of human nature and social institutions. The fact that individual man has from the distant

days of human origin to the present been under the necessity of finding his own food and shelter, accounts very largely for his strong acquisitive sense. In almost all the ordinary situations of life, every one values his own life first and seeks to preserve it, even at the expense of others. At the same time, man has carried on his activities in groups, and this has required a ready subordination to leaders, and even a willingness to sacrifice his life for the preservation of the group in times of crisis, such as war. At such times, the average man is powerfully moved by group sentiments and joins unreservedly any activities deemed essential for group preservation. In this twofold nature of the struggle for existence, individual and group, are rooted ambivalent aspects of human nature, self-interest and group loyalty. Here, also, are based the corresponding principles of social organization, individualism and socialism, and their correlated institutions of private property and competition on the one hand and nationalism and war on the other.

NATURAL SELECTION

How Selection Works. The struggle for existence leads inevitably to selection. Men are not equally fitted to engage in and win success in a competitive life. In all sorts of ways low-grade stock is handicapped, sometimes by any one of numerous physical defects, sometimes by mental deficiency. These handicaps express themselves, in our own society and in their most obvious form, in low wages and low standards of living. In the ambitious competition for a more abundant life, the strong and clever succeed in winning for themselves and their progeny a more ample means of subsistence. They acquire not merely the necessary means of life, but the means of health, sustained energy, and happiness. The defeated, on the other hand, sooner or later find themselves overcome by the direct and indirect effects of poverty and disease.

Natural selection is usually conceived to operate through death, that is, by the more rapid elimination of the weaker, less resistant, or less well-adapted individuals and strains. This, however, is too narrow and limited a conception. As already stated, the essence of natural selection is *the differential rate of survival into the next generation of the hereditary traits carried in different lines of descent*. A line may be cut off as effectively by failure to find a

mate as by early death. Then, again, one strain may have a much higher birth rate than another and, by making a larger contribution to generation after generation, come to represent an ever-increasing proportion of the population. The three kinds of natural selection already indicated, (1) lethal, (2) sexual, and (3) reproductive, are at work in the human family. These forms of selection are based directly on hereditary individual differences, but they are also affected indirectly by social convention and state of culture. There is another kind of selection which may be said to be based directly on social circumstances and only secondarily on hereditary differences. We may call this (4) *societal* selection. Finally, in war and even milder forms of competition, there is often the elimination of one social group, tribe, or nation, by another. We may call this (5) *group* selection. The differences between these forms are not absolute, but the terms serve to call attention to prominent features of different ways in which the selective process functions.

It should be clearly understood that selection is much less a matter of individual death or survival than it is the increasing or diminishing proportions of the population represented by certain strains or types. Consequently, the final test of natural selection is not merely differences in death rates, marriage rates, or birth rates of different strains, but rather the *net fertility*, or the final resultant of marriages, births, and deaths in different strains. Thus strain A may have a higher birth rate than strain B, but its death rate may be so much greater that the children who survive to maturity may be actually fewer in strain A than in strain B. The Negro in America, for example, has in general a fairly high birth rate. But his death rate is so great that his increase is extremely slight. Under present American conditions natural selection is thus working against him. He constitutes a smaller and smaller proportion of the population with each passing year.

Natural Selection an Eternal Process. It is frequently asserted that natural selection is no longer operative in the human species; but in view of the facts this is a statement extremely difficult to understand. As shown above, every form of life is subjected continually to the elimination of the less fit and the survival of the more fit, and man is now and will forever be subject to this

factor.¹⁵ By improvements in the industrial arts, more perfect understanding of nature, and his consequent increasing control over his life conditions, man is able to prolong his life. He has succeeded in reducing his mortality, and has thus shown his ability to modify the intensity of the struggle for existence and the operation of natural selection upon him. The wonderful progress we have made in medical and sanitary sciences and the humane efforts to preserve the weak and the defective have undoubtedly lessened the immediate intensity of natural selection. But there can be no final termination of the operation of natural selection, until all men are so nearly equal in hereditary constitution and in social environment that birth and death rates will not vary among the various elements of the population. Natural selection will continue until all the various strains and types in the population multiply at the same rate, so as to leave the characteristics of the population in one generation exactly the same throughout as they were in the preceding, and as they will be in the succeeding generation.

Natural selection in final analysis is based on the fact that men vary in physical fitness and in mental and moral qualities, and that they, therefore, differ in length of life and contribution of offspring to the next generation. Regardless of the control which man may finally achieve over nature, and even over his own reproduction and development, it is not at all probable that he can eliminate differences in physical and mental constitution so as to utterly wipe out all selective action. A complete and perfect equality among men in both their hereditary constitutions and social environments is conceivable but not at all probable. Life conditions are continuously undergoing changes which affect different elements in the population in different ways. Not only are there continuous weather changes, but there are alterations in social customs and habits. Styles of work, dress, and play come and go, each with its toll of victims. Poverty and its accompaniments seem likely to be perennial, while man's most deadly enemy, the microbe, brings ever new recruits to a devastating onslaught. There are alternating periods of prosperity and depression, peace and war; indeed, civilization itself ever rises and falls.

¹⁵ For a similar view see G. A. Reid, *Present Evolution of Men*, London, Chapman and Hall, 1896; S. J. Holmes, *The Trend of the Race*, Harcourt, Brace and Co., 1921, Chapter viii, Karl Pearson, "The Intensity of Natural Selection in Man," *Proceedings Royal Soc.*, Vol. 85, 1912, B., pp. 469-476.

Finally, a perfect and static adjustment to life conditions is impossible because of the cyclical changes on the globe itself. A future ice age is highly probable, if one may base his expectations of the future on the repeated phenomena of the past. And one can foresee in the far-distant future that the exhaustion of the earth's heat and the cooling of the sun will work cataclysmic changes in the whole of the plant and animal world, which may well equal in importance the great changes of the past geological ages. So long as such changes in the physical world and in the plant and animal world continue, man will be subject to that selection for survival which constitutes natural selection.

Examples of Lethal Selection. *Climate.* Man, then, is subject to natural selection and will continue to be. What are the factors in this selection? These factors are revealed, in part, by all those conditions which influence adversely the death rates of a population. Some of these have already been mentioned in discussing the struggle for existence. Moreover, it should be noted as a fundamental feature of the operation of natural selection that it produces and preserves adaptation to relatively constant elements in the environment. Thus, a race becomes acclimatized; it endures well the climate to which it is adapted by long residence, but suffers an increase of deaths upon migration to a different one. We have seen that the white man cannot remain long in the tropics without experiencing great physical deterioration, while Negroes in northern cities have a very high death rate from all sorts of lung diseases. The United States Census finds the expectation of life at birth is, for native-white males, 50.58 years, and for native-white females, 54.19 years; but for Negro males it is only 34.05 years, and for Negro females, 37.67 years.¹⁶

Every race is thus subject to selection by the constant elements of its geographical habitat. A. H. Keane points out that Eskimos brought south by Peary died so rapidly of pneumonia that the survivors had to be sent back to save them.¹⁷ "The human varieties are seen to be, like all other zoölogical species, the outcome of their several environments; they are what climate, soil, diet, pursuits, and inherited characters have made them, so that all sudden transitions are usually followed by disastrous

¹⁶ From *United States Life Tables, 1910*, Bureau of the Census, 1916.

¹⁷ *Man, Past and Present*, Cambridge Univ. Press, 1920, p. 17.

results.”¹⁸ We reached a similar conclusion in Chapter V. (Figure 40.)

Bacteria. Of all man's enemies, the disease-producing bacteria are the worst. They account for plagues and numerous diseases. Some of them, like cholera, seem to commit their worst ravages



FIG. 40.—The attack on tropical diseases, I. This chart shows the decline in yellow fever in the western hemisphere, 1900–1926. Taken in conjunction with the charts relating to malaria and hookworm (Figures 41 and 42), it suggests a new era for tropical countries. These charts show how science alters the selective action of climate and bacteria dependent thereon. Do they warrant the expectation that the white man can invade the Tropics? From *Annual Report*, The Rockefeller Foundation, 1926, by permission.

periodically, and hence fail to exert that steady selective action necessary to build up racial resistance or immunity. It has been noted, however, that various populations do show a relative immunity to germs to whose attacks they have long been subjected. Thus, Chinese are less liable to typhoid than Whites; the Jew is said to be less liable to tuberculosis than the European races,

¹⁸ *Ibid.*, p. 13.

while the Negro is notably subject to tuberculosis, pneumonia, and bronchitis; tribes of New Guinea and northern India live with almost perfect immunity in the presence of pestilential swamps with deadly fever germs which make utterly impossible residence by a white man. S. J. Holmes,¹⁹ after quoting Haycraft to the effect that the mortality from malaria in Sierre Leone was only .24 per cent for Blacks but 47 per cent, or nearly 200 times

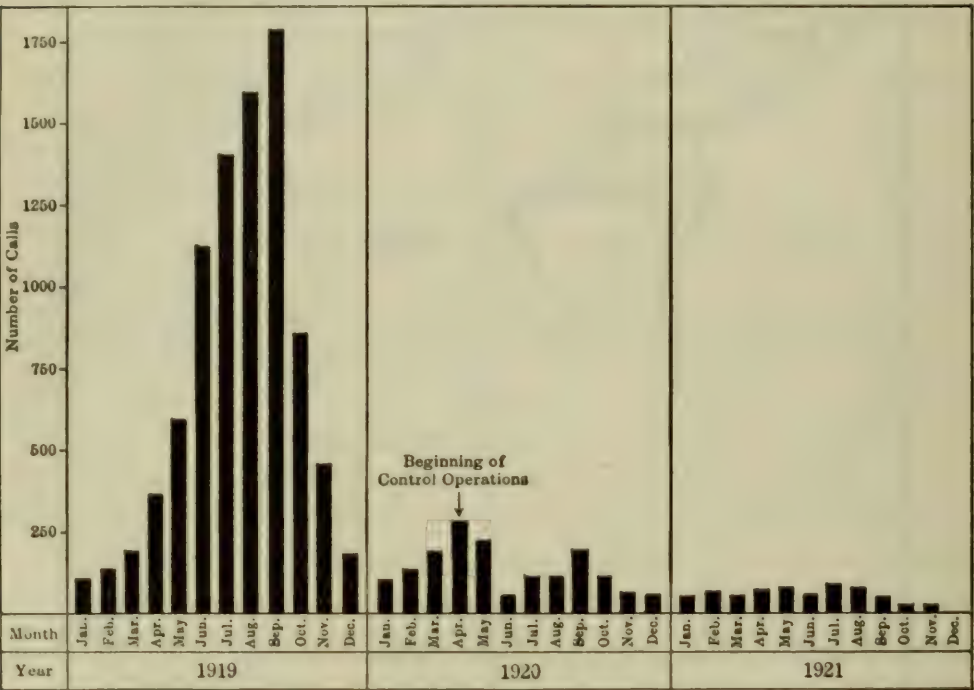


FIG. 41.—The attack on tropical diseases, II. The graph shows the reduction in the number of physicians' calls for malaria in two towns in Texas, after the beginning of control operations in April, 1920. The contrast between 1919, a typical pre-control year, and 1921 is striking. From *Eighth Annual Report*, International Health Board, 1922, by permission.

as great, for Whites, states that “were it not for their relative immunity to malaria, they (the Negroes) would probably long ago have been eliminated from Africa by invaders from other lands.” It is contended by some that the European races have become practically immune to smallpox, and that they have developed a high resistance to venereal diseases and tuberculosis. (Figures 41 and 42.)

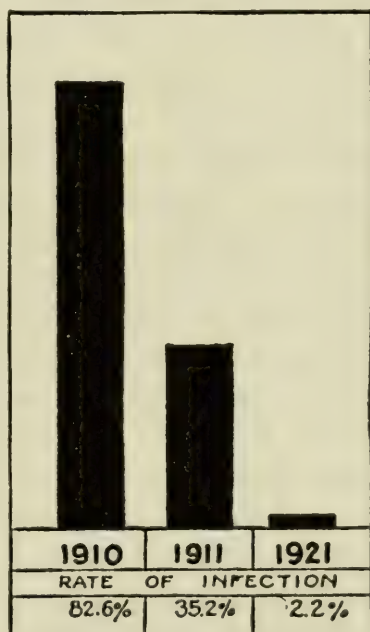
This latter disease furnishes a remarkably good illustration of

¹⁹ S. J. Holmes, *Studies in Evolution and Eugenics*, Harcourt, Brace and Co., 1923.

the point. It is probable that practically every one in a modern community is subject to attack by the tubercle bacillus. Autopsies reveal that, before age fifteen, from 50 to 90 per cent of dwellers in modern cities have had a sufficient attack to leave scars on the lungs. But only a small proportion of those attacked finally die of the disease. These are persons who have low resistance either because of a poor hereditary constitution or because of manner of life (occupation, strain, undernourishment, etc.). In other words, death is constantly selecting those unable to withstand the presence of this germ. It seems quite certain, therefore, that in time the European races would become even more resistant to tuberculosis than they now are.

Moreover, it is very significant that this selective action by the tubercle bacillus is confined to a limited proportion of families or blood streams. Professor Karl Pearson has shown that the correlation between parents and children for tuberculosis is about

FIG. 42.—The attack on tropical diseases, III. The hookworm is perhaps the greatest of all tropical plagues, so far as natives are concerned. The graph tells the hookworm story of Richmond County, Virginia. When the first demonstration was made there in 1910, 82 per cent of the school children were infected. Fifteen months of intensive treatment reduced the percentage to 35.2. Ten years later infection had become negligible. From *Eighth Annual Report*, International Health Board, 1922, by permission.



the same as the correlation for height or other physical traits; that it is very much higher than the correlation between tuberculosis and bad environmental conditions, such as poor housing; and that it is much higher than the correlation for tuberculosis between husband and wife, a considerable part of which latter correlation is due to assortative mating, or the tendency of like to marry like. His contention is that, if death from tuberculosis

were primarily due to infection, there would be a higher association between tuberculosis in husbands and wives than in parents and offspring. Nevertheless, he finds that, if a man has tuberculosis, his sons are more likely than his wife to have it, thus showing the greater importance of heredity as an etiological or causative factor. It must be remembered, moreover, that a large part of the association of tuberculosis with bad housing, inferior food, and overwork is explained by the fact that persons of low intelligence or inferior physical vigor find the competition of life almost too much for their meager hereditary powers.

Nevertheless, death from tuberculosis could not occur, if there were no infection. It must equally be remembered that there are many deaths from tuberculosis which are not selective, being due to the unusually hard conditions of life in which many persons of strong constitution are compelled to live. It is also true that the tuberculosis rate has been greatly reduced in this country by our increased knowledge of its causes, course of development, and proper treatment. Such reduction means that the force of selection has been reduced. There is thus raised an extremely difficult dilemma. Is it wiser in the long run to preserve the tubercular strains and permit them to multiply and thus weaken the race, or to allow them to perish in the hope and expectation that a sounder race will result?

Special Hereditary Deficiency. In a similar manner selective deaths tend to eliminate those stocks in which certain other diseases, or tendencies to disease, are found. Thus diabetes, Bright's disease, and hæmophilia are frequent causes of death. Likewise, the death rate of strains showing hereditary insanity is notably above normal, as is also that of mental defectives.²⁰ Clark and Stowell made "A Study of Mortality in Four Thousand Feeble-Minded and Idiots,"²¹ and found the mortality of feeble-minded children to be double, and that of idiots and imbeciles to be eight times, that of the normal. Here is clear evidence that natural selection favors the sound and capable, even in our highly humane society, where unusual care is given unfortunate defectives. While an excessive mortality is in itself, even in such cases, often a great evil, its outcome is social good in the form of sound minds and sound bodies.

²⁰ M. W. Barr, *Mental Defectives*, Blakiston, 1904, p. 131.

²¹ *Medical Journal*, Vol. 97, 1913, pp. 276-376.

Ignorance. This selective action may be seen in many other directions. Ignorance, which in turn is associated with low intelligence, is a factor in many deaths from lack of knowledge of hygiene, rules of health, and food values. The enactment of the prohibition amendment was followed by an epidemic of deaths from wood alcohol, many of which deaths were due to the mental and character traits of the individuals affected.

Morality. In this connection it may be pointed out that natural selection also tends to favor the moral, or those gifted with common sense and self-control. There is a constant toll taken by death in consequence of violence, recklessness, and passion. Doubtless, intelligence is an important factor here also, though men of genius are sometimes conspicuous victims. Alcoholism, venereal diseases, drug addiction, and similar traps for the unwary make the way of the sinner short and full of thorns.

Social Crisis and Social Class. Times of social stress, such as periods of unemployment, advance the death rate. The civilian population in Germany and Austria during the years 1917-1918, and in Russia after 1917, were subject to vigorous selective action by under-nourishment and disease. In every community, there is some selective action on the basis of occupational distribution. In England, repeated studies have shown that stature and body-weight vary from occupational class to class; the unskilled ranked below the less skilled and these in turn below the skilled workers, while the professional classes ranked highest in physique and in freedom from physical defects. The Army psychologists found a similar gradation in this country with respect to intelligence.

Not all of such selection, however, is beneficial to racial quality. If waiters and peddlers have a high death rate because of weak physiques, this cannot be said of fishermen, miners, quarrymen, and railroad workers, whose high death rates are partly incident to occupation. These may, in many individual cases, even exceed the average in physical strength and mental ability. Like all other natural processes, therefore, lethal selection is wasteful and haphazard. Like the rains of heaven, it strikes the just and the unjust. Pearson claims to have shown that about two-thirds of all deaths are selective, in that they are due to weakness of some part of the physical endowment, here the heart or lungs and there the kidneys or digestive tract; but

even his computation indicates that one-third of all deaths are non-selective.²²

As one ascends the social scale, the rate of death diminishes. This is partly due, no doubt, to the fact that the upper classes have better food, and a more healthful mode of life; but it is also fundamentally true that they are the upper classes and have this better environment because of their superior intelligence and energy. When Galton finds the death rate of English men of science very low, and Cattell finds the same is true of American men of science, they discover what one should expect if intelligence is a factor in the struggle of and for life.

Selection and Infant Mortality. An extensive controversy has raged about the question whether infant mortality (deaths before one year of age) is selective and to what extent. It is obvious that many deaths due to infantile diseases are non-selective. In early infancy, even a strong child has low powers of resistance and may be carried off, along with weaker ones, by an epidemic, or by any one of many unfavorable events in which chance plays a part. On the other hand, the universal testimony from observers of plant and animal life is that selection operates with special vigor in the early stages of development. It is not reasonable to suppose that man is an exception.

The instance given above of the high death rate among feeble-minded and idiotic children is clearly selective. Deaths due to constitutional defects are also clearly selective. Deaths due to contagious germ diseases are less clearly so, but even here it is reasonable to assume that, among children of the same general environment, the germ diseases exert considerable selective action.

But many studies reveal that infant mortality is greater among poor families than among the well-to-do. In his summary of various "Infant Mortality Studies of the Children's Bureau,"²³ Dr. Robert M. Woodbury gives the following table:

²² A readily accessible summary of the work of Karl Pearson and associates is found in the *Eugenics Laboratory Lecture Series*, especially Nos. 2, 3, 5, 6, 7, 8, and 18, Cambridge Univ. Press; for criticism and amplification consult the references to Holmes, Pearl, and East.

²³ *Quarterly Publications of the American Statistical Association*, June, 1918, pp. 30-53.

INFANT MORTALITY AND FATHER'S EARNINGS: BALTIMORE

EARNINGS OF FATHER PER YEAR	TRUE INFANT MORTALITY RATE	
No earnings	207.7	Deaths in 1,000 infants of each class before the first birthday.
Under \$450	156.7	
\$450- \$549	118.0	
550- 649	108.8	
650- 849	96.06	
850-1,049	71.5	
1,050-1,249	66.6	
1,250-1,449	74.0	
1,450-1,849	86.3	
1,850-and more	37.2	
Not reported	140.2	
All classes	103.5	

Here it is clear that the father's earnings, which may be taken as an index of home conditions, are closely related to the infant mortality rate. As the earnings go up, and as, therefore, the home conditions improve, the frequency of death in infancy diminishes. This shows that natural selection is working more vigorously among the poorer elements in a modern city than among those higher up in the economic scale. We are by no means certain, however, what proportion of the excess infant mortality of the poor is true selection. The whole subject is far from clear. It may be that most of the differences in death rates are due to the differences in ability to buy better and cleaner food, to provide better nursing and medical care, to secure for the mother needed rest and recuperation after childbirth, to live in a cleaner, better ventilated, and better lighted home. In that case, the higher infant death rate among the poor would be of little benefit to racial soundness. It seems certain, on the other hand, that the more energetic and capable fathers earn more, and hence the lower death rate among their offspring tends to preserve the quality of the race.²⁴

On the whole, therefore, it seems probable that infant mortality has considerable selective value. Nevertheless, we are not warranted in taking an attitude of indifference toward it. There is much ground for supposing that infant diseases leave a trail of injury in many of those who recover from them. Moreover, when one views the appalling waste of life,—not merely of infants, but of mothers,—and the other human losses of physical and nervous energy and wealth, due to the millions of such deaths an-

²⁴ For an excellent discussion, see S. J. Holmes, *Studies in Evolution and Eugenics*, Harcourt, Brace and Co., 1923, Chap. vii.

nually throughout the world, he realizes that the preservation of racial soundness must be sought elsewhere than in high infant mortality. The solution requires a lower rate of reproduction among the less sound and less well-endowed strains. The slogan "fewer and better babies" is sensible, especially when "better" means "better stock."

Sexual Selection. In his work on *The Descent of Man and Selection in Relation to Sex*, Darwin laid great stress on the importance of sexual selection as accounting for various traits which distinguish the sexes. By this selection he meant the rivalry of individuals of one sex, usually the males, for the possession of the opposite sex. This rivalry may take the extreme form of killing the rival, or less mild forms of driving him away, or greater success in winning the favor of a prospective mate. The successful rival would thus mate earlier and in some societies also secure a larger number of mates. He would hand on his traits to the next generation in larger proportion than the defeated rival. In general, sexual selection means simply that persons with certain characteristics are preferred as mates to persons lacking these characteristics or having their opposites. It is, therefore, also called "preferential mating." It is an aspect of natural selection in that through it are determined those who shall be mated and, therefore, contribute to the next generation. Whatever trait in either sex tends to charm one of the opposite sex comes to have survival value and to become a more frequent trait in succeeding generations, other things being equal.

Darwin thought not only that secondary sex traits would be developed by such selection, but also that various racial traits would be emphasized. He argued that, though men exercise a freer choice, women also have some power of selection. The more attractive and powerful men have in the long history of mankind preferred and have been preferred by the more beautiful and attractive women. A striking confirmation of this theory is found in the life insurance figures showing the greater longevity of married men and women over bachelors and spinsters. Strength, health, and virility, expressing themselves in bodily vigor and proportions, in brightness of eye and ruddiness of skin, in luxuriance of hair or vivacity of manner, win at once a mate, progeny, and longevity, while weakness, sickness, and low vitality result in an enforced celibacy.

Sexual selection thus makes for racial strength, vigor, and

bodily beauty. The students of human marriage find various customs as child marriage, which run counter to such selection, but many others which illustrate it. Not uncommonly among primitive peoples, suitors are required to prove their superiority in some such contest as wrestling, fist-fighting, or duelling with clubs or bows and arrows, or to prove their prowess by military exploits. The chief and the more successful men among many peoples have more than one wife, a custom for which considerable biological support may be found.

In modern society, sexual selection, while undoubtedly operative, is less vigorous. The monogamous family, under economic conditions which enable all grades of persons to marry, greatly checks the advantages of the superior individuals in mating and reproduction. Nevertheless, there is plenty of evidence that the healthy, beautiful, and capable win mates more readily than the sickly, ugly, and incapable. On the other hand, various tendencies of a decidedly derogatory character are manifesting themselves. The intellectual classes, who are presumably the superior types, marry late and have few offspring. The increasing freedom of women is accompanied by a decline in the marriage rate and birth rate among women of intellectual training, who again are presumably women of superior hereditary qualities. At the same time, modern social conditions permit the feeble-minded and tubercular to marry and reproduce their kind, thus lowering the average racial quality. Society does much by public health measures to preserve the lives of even the most poorly endowed individuals, trains them for livelihood and permits them to marry. Although health and beauty, strength and intelligence find mates more readily than their opposites, and although these qualities enable their possessors to bring to maturity a larger proportion of their offspring, it, nevertheless, seems quite probable that in our society the restricted birth rate of the upper classes, together with other facts just cited, more than nullifies the racial advantages derived from sexual selection.

Assortative Mating. A special subdivision of sexual selection is assortative mating, or the tendency of persons of like hereditary physical, mental, and temperamental traits to mate. It is the opposite of *panmixia*, or the indiscriminate or unassorted mating of all elements in a population. Numerous writers ²⁵ have con-

²⁵ See especially L. F. Ward, *Pure Sociology*, The Macmillan Co., 1903, Chap. x.

tended that opposites marry, and that this is a device of nature to maintain the equilibrium of qualities in the offspring. This is purely aprioristic biology. It has been clearly demonstrated that persons of like traits tend to marry. This does not mean that tall men always marry tall women and *vice versa*, but that tall men do not marry short and tall women with equal frequency; they show a marked preference for tall women. In one of his earlier studies Galton²⁵ showed that the parents of English intellectuals were markedly alike not only in certain physical traits but also in temperament. It is largely in consequence of assortative mating that every society is more or less permanently stratified. Able men are more successful than inferior men in securing the more beautiful and intelligent women as wives. For the most part, morons are compelled to marry morons. While here as elsewhere in social phenomena there is a great deal of trial and error, or hit and miss, there is a definite tendency for all grades of individuals to find mates at or near their own level of hereditary fitness. One of the most important consequences of this is that, although the upper classes constitute not more than 10 per cent of any society, they produce a very considerable proportion of the genuinely gifted men and women. Assortative mating is thus a conserver of racial genius, and any society that could succeed in inducing its successful classes to have large families instead of small ones would guarantee for itself an abundance of able leaders in all lines of social achievement.

In a mixed population, assortative mating is also a large factor in preserving varieties and racial strains. As regards the English population, for example, Pearson²⁷ gave exact mathematical expression for this tendency with respect to stature and eye-color. The operation of this principle may be seen in the intense opposition to White-Negro marriages in this country. In fact, there can be no doubt that the preference of like for like, or "the consciousness of kind" as Professor F. H. Giddings²⁸ called it, has played an important rôle in the formation and preservation of racial types. If, for example, blond mutants should arise in an

²⁵ Francis Galton, *English Men of Science. Their Nature and Nurture*, The Macmillan Co., 1874.

²⁷ "Mathematical Contributions to the Theory of Evolution, III.—Regression, Heredity, and Panmixia," *Phil. Trans.*, Vol. 187, 1897, pp. 253-318; *Grammar of Science*, London, A. and C. Black, 1900, pp. 429-437.

²⁸ *Principles of Sociology*, The Macmillan Co., 1896.

otherwise brunet population, they might, and probably would, prefer blond to brunet mates. Their type would thus be preserved. Nearly every racial group considers itself the model of beauty and perfection and treats with scorn or derision the special hereditary traits of other races. Some exception to this rule is seen in the preference among Negroes in America for lighter-skinned mates. Professor E. B. Reuter,²⁹ has shown that colored Americans prefer mates with some evidences of white intermixture. Such preference can be explained by the social prestige of the white race and also by the pressures of social opinion and social opportunity, which give advantages to persons of light skin in a white-man's world.

One must distinguish between the preference for mates of like culture from the preference for mates of like heredity. The fact that Methodists marry Methodists instead of Catholics may or may not have any significance for assortative mating; and yet even here some tendency to marry along racial lines could be shown in many cases. Moreover, as we stated above, the tendency of persons of like cultural levels to marry is to some extent an illustration of the principle of assortative mating. Persons of very low intelligence, and hence of low educational and cultural attainment, cannot find mates among those of high intelligence, superior education, and culture. Persons of special talent are likely to marry similars, just as commonplace persons are likely to marry commonplace.

Reproductive Selection. (1) *Between Nations.* There are constant changes occurring in the composition of nearly every population through differential birth rates, or differences in the rate of multiplication or size of families among different population elements. Such differences result in reproductive selection. On a large scale, one sees an illustration of this in the increasing preponderance of the Alpine stock in western European countries. Careful comparative studies have shown that during the past 500 years the proportion of Alpines has more or less steadily increased in eastern and southern Germany and throughout most of France. This increase is fundamentally explained by their high fertility and the continued overflow of their surplus into areas which were previously predominantly either Nordic

²⁹ "The Superiority of the Mulatto," *Amer. Jour. Soc.*, Vol. 23, 1918, pp. 83-106, and *The Mulatto in the United States*, Richard Badger, 1918.

or Mediterranean. In the same way, the latter half of the nineteenth century showed a much more rapid increase of Germans and Italians than of French. At the present time, while the French population is nearly stationary, that of Germany is increasing at the rate of 700,000 or more per year. At the same time, the excess of births over deaths in Italy not only gives rise to great internal difficulties but threatens international complications because of the necessity of finding areas into which they may migrate. One consequence is that hundreds of thousands of Italians have moved into southern France since the war, and one may foresee that if this movement continues not only will the population composition of France be materially altered, but a new cause of war may develop.

It is in the differential rates of multiplication of different nations and nationalities that is to be found the most difficult problem of world peace. No sooner is the world nicely balanced and all parts at peace with each other, than the excessive increase of population in one or more areas, and the correlated increase in national strength and ambition, upsets the equilibrium. Those who dream of establishing a world order must find some way repeatedly to relocate the balance of power by the orderly processes of law and diplomacy, rather than by the destructive policies of force.

(2) *Between Racial Elements.* In America, the French-Canadians, Italians, and Poles multiply at a truly prodigious rate, whereas the Old American stock in many areas is not even holding its own. Statistical inquiry indicates that the original white stock of New England has been slowly dying out since about 1880. Various investigations in eastern states showed that foreign-born mothers have been producing offspring at twice, or even three times, the rate of native-born mothers. Even under completely restricted immigration, therefore, the population composition of New England will be greatly different in 1975 or 2000 A. D. from what it is to-day. Similar changes are affecting the population composition throughout the United States. In other words, there is going on in this country not only the world's greatest example of the fusion of racial and nationality elements, but also the most striking example in modern times of the displacement of some racial and nationality elements by others. Such *race substitution* carries with it to a large extent also cultural substitution. The multi-

plication of French-Canadian, Italian, and Polish elements in New England is deeply affecting the religious, moral, political, and economic life. It is even altering the physical appearance of the landscape.

All available evidence indicates that even the Negro suffers from reproductive selection in northern cities, where his fertility seems to be sharply reduced. This reduction may be explained in part by climatic maladjustment, but more extensively by the excessive drains upon bodily energy due to the stresses and strains of adjustment to the strenuous competitive life of a modern urban community. A race, which through immemorial time had become adapted to the relatively easy-going conditions of life in tropical areas, finds the modern urban and industrial environment even more inimical to reproductive vigor than the hardier temperate zone races.

(3) *Between Family Strains.* More narrowly viewed, reproductive selection applies to the different rates of increase of different elements within the same racial or nationality stock. We meet here again the question whether, among western nations, the more able family strains are multiplying as fast as the less able. This question assumes extraordinary importance when it is realized that a relatively small proportion of those born in each generation become the progenitors of a majority of the succeeding generation. Pearson has shown that from 50 to 60 per cent of those born leave no progeny whatever. Moreover, among those who do produce, some have few offspring, some an average number, and some many. From a careful calculation of the number of families of each size, it was possible to show that the 25 per cent of families with the greatest number of children have one-half of all children. Since the parents in these families constituted not more than $12\frac{1}{2}$ per cent to $16\frac{2}{3}$ per cent of those born in their generation, Pearson concluded that one-eighth to one-sixth of those born in one generation become the progenitors of one-half the next generation. This rule he confirmed for England, Denmark, and New South Wales. The proportions reached in his study obviously will vary from time to time and place to place, according to variations in the birth rates of different strains. In New England it is probable that the proportion of families producing half the next generation is to-day quite as small as one-eighth. On the other hand, in various European cities where

working-class families have been greatly reduced in size, the proportions comprising one-half of all the children might be as much as one-fourth or even one-third. It is, in any case, clearly demonstrated that very considerable changes in the composition of a population can take place in a few generations.³⁰

Reversed Selection. If, then, it can be shown that, on the whole, the larger families come from the less able stocks, we shall be warranted in concluding that western nations are now subject to *reversed selection*, that is, *a tendency for the less valuable elements in the population to multiply more rapidly than the more valuable*. There is abundant evidence of this, not only for the United States, but for England, France, and Germany. Everywhere, the educated, more well-to-do, more cultivated individuals tend on an average to marry later, to practice celibacy more frequently, and to have smaller families. One author expressed the situation neatly by saying that all the little families live in the big houses and all the big families in the little houses. Wherever studies are made revealing the size of family in relation to occupation or profession, the facts show that miners and unskilled workers have considerably larger families than members of the business classes. One among many such investigations ³¹ showed the following correlations between certain marks of social class and number of children in a series of varied communities or districts in 1851 and 1901. It was assumed that a large proportion of professional men, or of domestic servants, indicated an upper-class community, while a large number of general laborers, or of employed children, indicated a working-class community.

CHARACTERS CORRELATED WITH BIRTH-RATE	CORRELATIONS	
	1851	1901
Number of professional men per 1,000 males	— .53	— .78
Number of domestic servants per 100 families	— .63	— .80
Number of general laborers per 1,000 males	+ .12	+ .52
Number of infant deaths per 1,000 births	— .30	+ .51
Proportion of children, ages 10–14, employed	.....	+ .66
Proportion of persons living more than 2 per room	.....	+ .70

We have seen that, both in England and in this country, investigations show that certain defective elements have larger families than the general average of the community, while graduates of

³⁰ "The Groundwork of Eugenics," *Eugenics Laboratory Lecture Series*, No. 2, 1909.
³¹ David Heron, "On the Relation of Fertility in Man to Social Status," *Drapers' Co. Research Memoirs*, Univ. of London, 1906.

American colleges have smaller families. In fact, Professors R. E. Baber and E. A. Ross ³² have shown that there is a progressive decrease in the size of the family as one moves from individuals with no education, through those with common and high school, to college education.

Since we are warranted in holding, in a broad way recognizing many individual exceptions, that those individuals who succeed best in competition with their fellows, whether in education, in

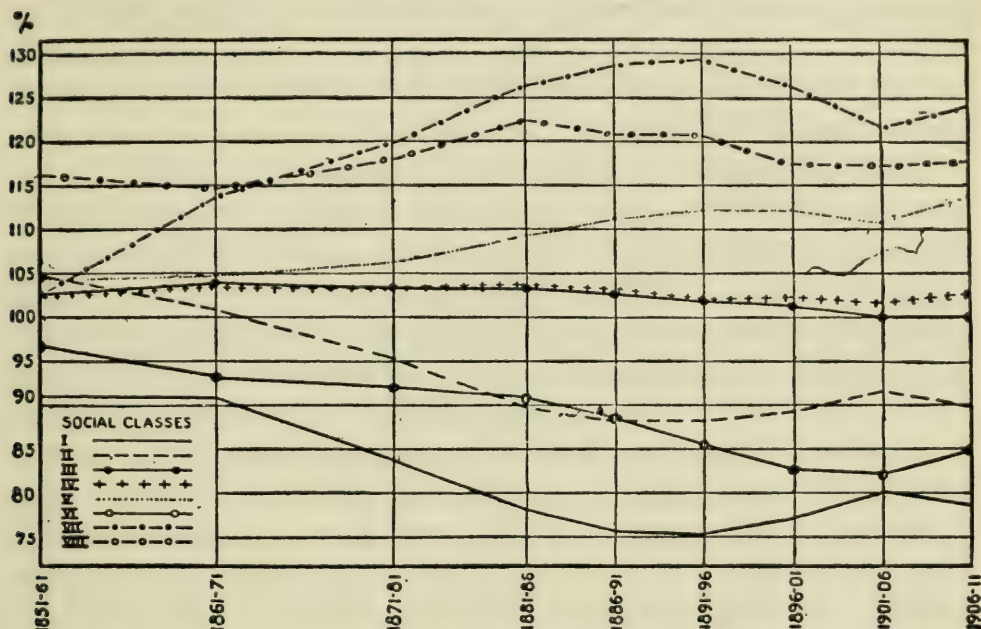


FIG. 43.—This graph shows an estimate of the crude effective fertility of different social classes in England, 1851–1911. I, Capitalists, managers, professional classes. II, Shopkeepers, lower ranks of professional groups, farmers. III, Skilled labor. IV, Medium skilled labor. V, Unskilled labor. VI, Textile workers. VII, Miners. VIII, Agricultural laborers. From R. M. MacIver, in *Population Problems*, Houghton Mifflin Co., 1926, by permission.

business, or in the professions, are better gifted with physical energy, mental ability, and sound character than their fellows, we are warranted in drawing the conclusion that the racial quality of western nations is now declining. From the standpoint of race biology, this is the most subtle and yet the most far-reaching transformation affecting the basis of future national strength and prosperity. It is a transformation which works slowly, but, in the long run, its effects are momentous. Great nations and civilizations can only be built and maintained by great peoples. (Figure 43.)

³² *Changes in the Size of American Families in One Generation*, University of Wisconsin, 1924.

It is not unreasonable to suppose that the decline of the ancient civilizations was, in part, perhaps in very large part, due to the exhaustion of the hereditary resources of the population. Highly cultured societies tend to die out at the top through the sterilization of the more able strains. At the same time, they furnish a social medium in which mediocrity and deficiency multiply. Such societies lose their ability to produce able leaders and organizers at the same time that their social organization becomes increasingly large and complex and the mass of the population bulky and unwieldy. They thus tend to fall apart or disintegrate for lack of that masterful guidance and control absolutely essential for any highly integrated organization.

Societal Selection. What we here designate as societal selection includes *all those forms of selection in which the state of culture, especially the social organization and the social tradition, are very prominent factors*. Such selection may be *unconscious*, so far as group purpose is concerned, or *deliberate*. The most important type of such selection to-day is seen in the migration of the surplus of rural populations to urban centers. In this the city serves as a magnet, drawing to itself selected individuals born in town, village, and countryside. During the whole of modern times, there has been more or less such movement. It was noted by John Graunt in a famous study of the vital statistics of London in 1662. A generation ago a German statistician called the country the "seed-bed" of the city. It is often thought that the sturdy and prolific rural population constitutes an almost inexhaustible reserve of population resources from which the nation can permanently draw sound, energetic, and gifted individuals, to organize and direct its political and economic life. But the stream that has flowed for several decades and is still flowing from country to city is enormous. The rural population can constitute an inexhaustible reserve, if those who are left behind by the migrants are as able and as sound as the migrants themselves, and continue to multiply at prolific rates. It is of first-rate importance, therefore, to know whether there are any tendencies in modern life which will result in the impoverishment of the countryside. If the cream of the country population is drawn off for several generations and poured into the bottomless pit of metropolitan life, the skimmed milk that remains behind will no longer constitute an adequate sustainer of national life.

But this seems to be just what is happening, not only in this country but elsewhere among the advanced nations. In this country the selective processes have been speeded up by our democratic ideals and our efforts to equalize opportunities for all. By providing universal education, we have set up the most effective selective agency in the world. The slow and the dull from every walk of life drop out of the educational machinery in the lower grades; the brighter go on toward the top. At the same time, the advance of civilization has made the business, professional, literary, and artistic life of the city the lure that draws talent of every sort and variety. It results that country boys and girls, who have succeeded in passing the local high schools, go on to other schools and colleges with a view to careers in the great city. Most of our higher education prepares for careers in the city; it is there that are achieved both fame and wealth. Farm life is colorless and laborious; many of those who can, escape it, leaving behind an undue proportion of those whose wits and energy are not sufficient to enable them to enter the more strenuous competitive activities of urban communities.

Such a situation is characteristic of every great culture, for civilization is essentially a phenomenon of the city. What happens is that the city draws to itself an unusual proportion of the talent of its contributory territory. It then stimulates these gifted minds in all the varied ways made possible by a highly dynamic and extraordinarily diversified life. There is for a time a most amazing outburst of group activity and truly phenomenal achievements of human genius. Then the pace slackens and decay sets in. Such a downward turn might not occur were it not that the city tends very strongly to sterilize its more able classes. As stated above, children are handicaps to the ambitious. Moreover, they interfere with the varied enjoyments of life which the city provides in unlimited abundance. In the twofold process of enticing an undue proportion of the gifted members of the population to its cities and then cutting them off with few or no descendants, civilization destroys its very life blood. It seems possible to say that no people has fully prepared itself for the ordeal of a high and long continued state of culture, until they have learned the secret of maintaining unimpaired those population reserves from which come the genius and the talent, without which a superior culture sinks to insignificant and uninspiring nothingness.

There are many other aspects of societal selection worthy of note. Some of these, like the foregoing, are unconscious processes at work in the social system and may give rise to no concern on the part of public opinion, until pointed out by the scientific observer. Others are the result of popular agitation or even of the deliberate action of the social intelligence. The policy of restrictive immigration is in part based on the principle of biological selection. The prohibition of oriental immigration tends to preserve the racial type. The system of penology may have something to do with the elimination of certain types of individuals, either by killing them directly or by incarcerating them. In either case, they are prevented from leaving progeny. In so far as such persons are below the general average of the population, such policies preserve the soundness of the race. Latterly, all civilized countries have adopted more or less extensive measures for the segregation, or even the sterilization, of the defective classes. Such policies have great eugenic possibilities.

Less definitely purposeful, but still highly important, are those activities of a social group designed to compel conformity to group standards of political and religious belief. That the vast majority of men are inclined toward a weak and slavish acquiescence in the opinions and attitudes of the mass of their fellows, was noted long ago by Sir Francis Galton. During his South African travels he noted, while observing the herds of wild cattle, that those young bullocks that were most venturesome and least gregarious wandered furthest from the herd and were oftenest killed by beasts of prey. The Kaffirs had learned that such bullocks made superior lead animals for their ox-teams, because of their superior independence and aggressiveness. This selective action of wild beasts in killing the individualistic and preserving the gregarious served to maintain in the cattle a high degree of gregariousness, so that they grazed in a compact herd. All wandering spirits were picked off and not permitted to reproduce their kind. In similar vein, Galton observed that mankind is also highly gregarious and hence of a slavish and imitative nature.³³ Man prefers to conform and he insists that others shall conform to the established modes of living and thinking, though with utter inconsistency he makes the

³³ *Inquiries into Human Faculty*, Home Univ. Libr. ed., E. P. Dutton and Co., pp. 47-57.

innovators, the rebels, and the martyrs of one period the heroes of the next.

This fierce insistence on conformity and intolerance of difference is responsible for important kinds of social selection. These take the mild form of social ostracism or public disapproval of types of conduct which make it more difficult for the individuals involved to find mates and to rear offspring; a most severe form is persecution resulting in violent death. We may note here only the latter, and especially persecution for differences of opinion. This is a phenomenon which is limited to relatively advanced societies, because among primitive peoples the critical spirit, with its accompaniment of freedom of thought, is only slightly manifested. Among western nations, such persecution as the Inquisition is believed to have greatly affected the course of cultural development in various countries. As Lester F. Ward ³⁴ says: "If by any force of circumstances the *élite* of any country were to be removed, that country would be left in a state of intellectual stagnation. Indeed, history has demonstrated this on more than one occasion. When Spain killed off and drove out its *élite*, it fell into decadence and never has recovered its vigor. On the other hand, the brilliant rôle played by Switzerland in the history of science is chiefly due to the rich recruits which that country received from the persecutions carried on in other countries."

This matter is even more strikingly put by Sir Francis Galton ³⁵ who said:

"The extent to which persecution must have affected European races is easily measured by a few well-known statistical facts. Thus, as regards martyrdom and imprisonment, the Spanish nation was drained of free-thinkers at the rate of 1,000 persons annually, for the three centuries between 1471 and 1781, an average of 100 persons having been executed and 900 imprisoned every year during that period. The actual data during those three hundred years are 32,000 burnt, 17,000 burnt in effigy (I presume they mostly died in prison or escaped from Spain), and 291,000 condemned to various terms of imprisonment and other penalties. It is impossible that any nation could stand a policy like this, without paying a heavy penalty in the deterioration of

³⁴ *Applied Sociology*, Ginn and Co., 1906, p. 133.

³⁵ *Hereditary Genius*, Macmillan and Co., 1869, pp. 345-346.

its breed, as has notably been the result in the formation of the superstitious, unintelligent Spanish race of the present day. Italy was also frightfully persecuted at an earlier date. In the diocese of Como alone more than 1,000 were tried annually by the inquisitors for many years, and 300 were burnt in the single year 1416. The French persecutions, by which the English have been large gainers, through receiving their industrial refugees, were on a nearly similar scale. In the seventeenth century three or four hundred thousand Protestants perished in prison, at the galleys, in their attempts to escape, or on the scaffold, and an equal number emigrated. Mr. Smiles, in his admirable book on the Huguenots, has traced the influence of these and of the Flemish emigrants on England, and shows clearly that she owes to them almost all her industrial arts and very much of the most valuable life-blood of her modern race." We have seen in our own day a similar decimation of a nation's intellectuals in Russia. Within a few years after the Bolshevik Revolution of 1917, some hundreds of thousands of the upper classes were killed and even larger numbers were driven abroad. The average abilities both intellectually and artistically of these slain and exiled Russians must have been greatly superior to the average of the nation as a whole.

The Witchcraft persecutions are estimated to have resulted in the death of many hundreds of thousands of persons, but just what their selective action may have been is not at all clear. On the other hand, the institution of celibacy is believed by Galton³⁶ to have been an important factor in prolonging the dark ages in Europe. He said: "Whenever a man or woman was possessed of a gentle nature that fitted him or her to deeds of charity, to meditation, to literature, or to art, the social condition of the time was such that they had no refuge elsewhere than in the bosom of the Church. But the Church chose to preach and exact celibacy. The consequence was that these gentle natures had no continuance, and thus, by a policy so singularly unwise and suicidal that I am hardly able to speak of it without impatience, the Church brutalized the breed of our forefathers."

It is not impossible that Galton exaggerated the effects of the Inquisition and of celibacy. The backwardness of Spain can be explained in part by her relative isolation from the active cul-

³⁶ *Ibid.*, pp. 343-344.

tural developments of northwestern Europe. The Pyrenees have prevented her from feeling directly the powerful stimuli of modern science and industrialism. Age-old superstitions have thus remained in fertile soil; a priest-ridden population has had no counter suggestions to enable them to throw off the yoke of tradition. That Galton hit upon a genuinely significant relationship, however, seems highly probable. Social change is slow and the full effects of causes only revealed after a long period of time. It seems probable that, had Spain broken with the medieval tradition along with other countries at the time of the Reformation, she would have secured the transforming benefits of the scientific advance. This would have enabled her to utilize her valuable coal and iron deposits so as to take advantage of the progress of the machine age. Industrial development would have expanded her trade and multiplied those contacts which destroy provincialism. Thus a powerful reactionary movement, setting up a vigorous societal selection during the fourteenth, fifteenth, and sixteenth centuries, was followed by national decline and permanent inability to partake fully of the advantages of twentieth century culture.

Group Selection. In addition to a great variety of individual and societal selection, there is also among social animals, and notably among men, a degree of group selection. There are times when even the strongest, the swiftest, the most cunning are not spared but all perish indiscriminately in a conflict involving the life of the group as a whole. War, in addition to being an important agent of individual selection, is the chief agent of group selection. Peoples with advanced technique have frequently slaughtered groups more primitively equipped. Thus, when Neolithic man entered Europe he seems, on the best of evidence, to have exterminated the Paleolithic races living there. Such selection is necessarily very indiscriminate because a race of lower organic worth may, because of its superior fighting instruments, succeed in eliminating a race of superior worth.

In its broadest extent this fact of group selection, while of some significance on the biological plane, is of perhaps greater significance on the cultural plane. For, it is obvious that, in a struggle between two tribes or nations with different types of culture, their cultures also are being put to the test. Through sentiments of loyalty and patriotism every group comes to consider its own

peculiar institutions as sacred and worthy of "the supreme sacrifice" on the part of every believer in them. Men fight to maintain their institutions, and their efficiency in warfare is, in turn, largely determined by these same institutions. Consequently, war puts to the test all features of a social organization. Neolithic man exterminated Paleolithic, and along with the latter went his art and religion, and all other aspects of his culture deemed unworthy of adoption by his conquerors. In the recent war, the greater initial power of Germany was due to her vast resources in applied science and her greater social solidarity. It was necessary for the Allies to imitate her in these respects. The intensified international competition of our era is forcing all advanced nations to adopt a more organic type of social organization as the only means of raising the survival power of the group.³⁷

SUMMARY

In this chapter, we completed the survey of the applications of biological principles to social life. It now appears that the variation and heredity discussed in the preceding chapter can be completely understood only in the light of those selective processes to which man, like all other living things, is subjected in consequence of his variability, the differential rates of multiplication, and the pressure of numbers upon the standard of living. In the opening paragraphs, we showed that there is throughout nature an excessive power of multiplication which involves all living things in a perennial struggle for existence, leading to natural selection and adaptation.

Man is involved in these same processes. Malthus thought the rate of increase would always result in considerable poverty, vice, crime, and war. He remarked that whereas "diseases have generally been considered as the inevitable afflictions of Providence," they should be looked upon as an inevitable consequence of human fertility. To-day, we can envisage the ultimate conquest of disease; a century of marvelous material progress has shown also the possibility of elevating the standard of living in all classes. This elevation has in turn reacted upon the size of family deemed expedient, and, with the aid of science, brought about almost universal control of births among western peoples.

³⁷ Karl Pearson, *National Life from the Standpoint of Science*, London, A. and C. Black, 1901, 62 pp., 2d ed., 1905, 106 pp.; Benj. Kidd, *Principles of Western Civilization*, The Macmillan Co., 1902.

Such control has set up a degree of reversed selection through the higher fertility of the lower classes, but the spread downward of similar control bids fair to correct this dysgenic tendency. It is equally important to create social conditions which will induce the more successful, and hence, presumably, the better endowed, strains to multiply more freely. This is apparently an insoluble problem in view of present trends of western culture. The steady urbanization of the population and the freeing of women from ancient religious and economic controls are its primary causes. Both causes seem likely to operate for a long time to come.

Furthermore, the reduced rigor of selection in our society greatly increases the prevalence of defects in the population at large. It is not merely a question of preserving the obviously defective, such as the blind, the deaf and dumb, the feeble-minded, and the epileptic, for these do not find mates easily. It is rather a question of preserving a multitude of less obvious deficiencies which may be more or less overcome in the appearance and behavior of individuals by medical science or formal education. These lesser deficiencies are in the course of a few generations diffused rather widely, are combined in more obvious forms, and give rise to an increasing proportion of neurotic and unstable individuals.

It cannot be said, therefore, that the outlook for the population future among the more highly civilized nations of the world is altogether bright, so far as quality is concerned. For a considerable future, however, there threatens no inadequacy of numbers, with the possible exception of France. The problem of numbers involves the whole question of the standard of living, the progress of science, and its applications to industry, and even more remote problems of political and economic organization, family, sex, and religious institutions. The security of the white stock is doubtless assured for a long time to come. It possesses the best portions of the temperate zone that are relatively under-populated, and it is increasing at a prodigious rate. The major problem here is the difference between rates of increase in different parts of the white world. This contains a constant threat of war, and will inevitably, in the long run, result in more or less race displacement and substitution.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. Is the tendency of better endowed strains to die out in an advanced civilization an illustration of "survival of the fittest"?

2. Why is birth control so rigorously opposed by many of the "best" people, most of whom practice it?

3. Is sexual selection of eugenic value to-day?

4. What is the selective value of war?

5. Suggest a practical plan for greatly reducing the proportion of morons in our population.

6. Is education an advantage or a disadvantage for eugenic progress?

7. Would it be advisable, first, to determine the native mental levels of children, and then to give them an education designed to fit them for some occupation suited thereto?

8. Does our knowledge of biological processes support the democratic theory of social organization?

9. How is selection related to vestigial organs? How would you explain the blindness of fishes living in caves?

10. What will be the effect of introducing modern medicine and sanitation into China and India?

11. Is there not considerable danger that birth control will go too far and give the future into the hands of the non-birth-control nations?

12. Is modern charity and philanthropy justifiable?

13. Interpret the table showing correlations of social class and birth rates, p. 308.

14. How would you justify the spending of large sums of money on the maintenance of the incurably insane and the confirmed criminal?

15. In what ways and to what extent does a race acquire immunity to germs and diseases to which it is constantly subjected?

16. What are the causes of the decline in the birth rate in the past fifty years?

17. Would assortative mating bring out recessive defects?

18. In what ways are modern urban environments selective?

19. Why should births following a war show an unusual proportion of males?

20. If it could be proven that alcohol acts selectively so as ultimately to produce a race immune to its effects, would this warrant its unrestricted use in modern society?

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CHAPTER VIII

THE PSYCHOLOGICAL BASIS OF SOCIAL LIFE

NATURE AND FUNCTION OF MIND

Conception of Mind. Mind may be conceived in such terms as to fit it into the evolutionary scheme. We may do this very simply by conceiving what is commonly called the mind as the functioning of living, nervous structures. Mind is the functioning of such structures, just as life is the functioning of highly organized protoplasmic material, or as bodily movement, strength, and energy are the functioning of the body. This implies that the amount and variety of mental phenomena exhibited by an organism depend on the size and structure of its nervous system. The behavior of an organism is to be understood as an expression of the potentialities of its nervous and muscular structures, as these are affected by its life conditions.

The validity of this point of view is now thoroughly established through the extensive researches of the genetic psychologists. They have shown clearly that those modes of behavior which represent the activities of the mind increase in number, variety, and complexity with the evolution of specialized nervous structures. There is thus little mind in the amœba, or other unicellular organisms; more of it in fishes and mammals; and much of it in the anthropoids and man. The lower organisms with extremely simple nervous structures have a very limited range of almost purely reflexive activities, whereas the higher organisms show capacity to react to a greater diversity of external situations in a great variety of ways. From this point of view, the human mind is phylogenetically connected with animal mind, but immensely more complex.

The most mysterious problem in this connection is that of consciousness. The human mind is capable of introspection, or of observing its own operations. The individual is aware of himself and his experiences, though recent psychological advances have shown that we are conscious of only a small proportion of

the activities going on in our nervous systems. Many scholars think of consciousness as a more or less separable spiritual entity having unique qualities of self-determination. This view seems to me erroneous. I think of consciousness as merely an attribute, or quality, of the higher forms of nervous organization. It is one of the conditions of human behavior, but has no self-originating power over conduct. At present, we can safely say that there is no direct evidence for the theory of consciousness as a separable entity, or as a mysterious, indwelling potency. There is no verified evidence for the existence of what we call psychic behavior, much less of consciousness, apart from living, organized, nervous structures. If consciousness is always found thus associated, we may reasonably infer that it is an attribute of such structures. If we assume its separable and independent existence, we enter the realm of metaphysical speculation, where desire and the "will to believe," based on infantile patterns of thought and emotion, lead to whatever conclusion one wishes to attain.

We may think of personality also in much the same terms; it is the unified expression of the psycho-physical organism viewed as a whole. From this viewpoint, animals also have personality. The total and unified impression made by their bodily size, shape, and movement, plus their psychic traits and characteristics, gives distinctiveness of individuality to a cat, a dog, or a person. The cultivation of the personality, like the cultivation of the mind, is a development of the various potentialities of the body, including both muscular and neural structures. Some of the most interesting recent advances in the study of types of personality have shown the great importance of early training on the one hand, and the activities of the ductless, or endocrine, glands on the other, in their development.

Function of Mind. *A. Adjustment.* Here, as elsewhere, we must find the *raison d'être* for structure and function in biological necessities, for the first need of every living thing is to be so adjusted to its life conditions as to insure survival. The mental traits, or capacities, in all cases serve the two fundamental functions of individual survival and species perpetuation. Their primary function is, therefore, to serve as a means for adjusting the organism to its environment. Herbert Spencer declared their function to be the adaptation of internal needs to external relations. All behavior is effort toward adjustment. Its success

determines survival. Every form of living thing is relatively friable, or delicate, in comparison with the substances and forces of physical nature. It would be utterly impossible for the elementary forms of life to preserve themselves amidst the rigors of their physical environment, did they not have in their structures an inherent tendency to react in certain ways toward the external conditions which are favorable to their survival, and in quite different ways toward external conditions which are unfavorable. At every level of life, there is this fundamental necessity of so adapting behavior to environing conditions as to preserve life, secure food, and insure reproduction. Natural selection will, therefore, tend to adjust the primary modes of response of every organism to the major conditions of its environment.

In the case of man, for whom the social environment is all important, behavior likewise is subject to the test of adjustment. Efficient, intelligent conduct is that which is adapted to the situation. Inefficient conduct leads to maladjustment and nervous strain. The most perfect of all intelligence tests is that of daily living. One may find in everything he does a test of his mental capacity to understand his situation and adjust to it by efficient behavior. The supreme test is the capacity to achieve ends of constructive value in his life as a whole. Here also the selective process is at work. Society exerts a tremendous selective action by approval and disapproval. Such selective action is a very powerful influence in shaping the habits, the likes and dislikes, the standards of judgment and valuation of every child and youth and thus shaping conduct into conformity with the culture of the time. There is also the operation of natural selection which tends to shorten the lives of the maladjusted and prolong those of the efficient.

B. *The Pain-Pleasure Principle.* From this point of view, we may conceive that pleasure-giving stimuli are, by and large, constructive, or life preserving, for the individual animal and the species to which it belongs, whereas pain-producing stimuli tend to be destructive. In the economy of nature, therefore, the organic structure is so constituted that those situations which are favorable to survival and species perpetuation result in a pleasurable, or satisfying, organic state, or are attractive. Their opposites produce unpleasant, or dissatisfying, states, or are repulsive. In this simple way the organism is constantly induced

to keep itself within the range of pleasurable, or life-preserving, conditions, and to avoid the unpleasant, or life-destroying, stimuli. On its lowest terms, life is thus reduced to the seeking of those conditions productive of pleasurable states and the avoidance of those productive of unpleasant ones. It is for this reason that most organisms show a tendency to become quiescent when fed. They are then in such a state of perfect bodily balance, or equilibrium of internal and external relations, that any movement is less pleasurable than rest. We may reasonably assume that an organism would remain thus quiescent until its state of satisfaction was disturbed, either by some environmental change, or by its own metabolic condition. At the same time, even the most pleasurable activities become painful, if continued too long. Even a gluttonous animal finds the continued ingestion of food painful. This is the signal to stop.

If we examine the behavior of any organism, as amoeba, dog, or man, we see that it has a more or less limited and characteristic type of behavior suited to the preservation and perpetuation of life under the conditions where it thrives. The simple organism living in a nearly uniform environment has a very limited range of activities. As we ascend the scale, both organisms and their environments become more and more complex. Behavior increases in range and variety to correspond. There is an increase in the number of internal stimuli that will release instinctive impulses or drives to activity, and an increase in the number and kinds of external stimuli that will arouse responses. At no time, however, do we depart from the pain-pleasure economy, broadly viewed.

We thus begin our study of the psychological factors in social life by positing that what we call mind represents the activity of the nervous system. Its function is to enable the organism to adapt its behavior to surrounding conditions. By heredity, variation, and selection the neural structures of every organism are evolved sufficiently to make possible modes of behavior adequate to individual and species life. There is little, if any, surplus power of psychic behavior. Moreover, the native responses of an organism are in the same manner so adjusted to the principal features of its environment that painful sensations lead to avoidance or withdrawal, while pleasurable sensations lead to approach. The former are destructive, the latter preservative. In the case

of man this principle still holds, but requires some elaboration in view of his unexampled versatility.

In his case the range and variety of activities are incomparably greater than among lower organisms. They are also more plastic or adaptable, especially to the ever-changing social life about him. But he also does his best to maximize his pleasures and minimize his pains. The motivation of conduct is so complex that this statement must not be interpreted to mean that man always seeks pleasures in the popular sense of that term. Rather, he follows that line of action which, in view of all the conditions affecting his conduct, gives the greatest balance of satisfaction or the least dissatisfaction. What produces satisfaction or dissatisfaction depends very largely on his training and experience. Moreover, in view of his capacity to set up future ends, or goals of effort, he may willingly incur great sacrifices for their ultimate achievement. Even when he indulges in what we call self-sacrifice, he does what, at the time, produces the least unpleasant reaction within him. The soldier, for example, is trained to prefer death to dishonor. A simple hedonistic interpretation of human conduct is, therefore, inadequate, but the pain-pleasure principle, when broadly conceived, seems, nevertheless, to be valid.

Psychological Differences between Man and Ape. The human body with its equipment of bones, muscles, glands, and nervous system is, of course, the inherited basis of behavior. It is because of the potentialities contained in his body, together with its limitations, that man walks, talks, laughs, weeps, and thinks as he does. If in any of these respects he behaves in ways strikingly like a chimpanzee, it is because his inherited bodily equipment is in many respects much like that of a chimpanzee. Since man belongs in the chain of animal evolution as its culmination, we need not expect to find him totally different from his nearest mental relatives. The same principle applies here which we found with regard to differences of races, namely, that the differences are those of degree rather than kind. That is, there is no psychic quality which man possesses which is not found, in at least a rudimentary state, among the apes. From the standpoint of the physiology of psychology, the most important difference between man and the apes is in size of brain. As was pointed out in an earlier chapter, the neurological structure of their brains is, however, sufficiently similar, so that anatomical

study of one throws light on the structure of the other. The differences are primarily those of size and relative proportions, rather than of arrangement, of parts. "The increment in the human brain is almost all in the association centers."¹

There are striking similarities between the behavior of man and the apes as regards motor, intellectual, and emotional activities. It was their supposed tendency to imitate human actions that led to the use of the verb "ape" as a synonym for "imitate." This term also implies crude imitation, such as arouses merriment or derision. The higher apes manifest intelligence similar to that of very simple-minded humans. They also give expression, in strikingly human ways, to a great variety of emotional states, such as joy, affection, sympathy, submissiveness, fear, hate, resentment, rage, coquetry, and love. Professor W. Köhler² says: "The chimpanzees manifest intelligent behaviour of the general kind familiar in human beings." They make intelligent choices and solve fairly difficult problems, if all elements for the solution are present. They are, like most men, visually minded; but they show very little capacity to retain or recall visual images after a lapse of time. They thus live entirely in the present and the near-present. This very slight ability to think about things not present, together with the lack of speech, would, in Köhler's view, "constitute the causes that prevent the chimpanzee from attaining even the smallest beginnings of cultural development."

This statement brings out the fundamental importance of visual memory, constructive imagination, and language for the evolution of culture. It is because of their inadequate possession of these traits that the great apes do not make tools for use under conditions that will arise in the future. Köhler found his chimpanzees fairly ingenious in making use of readily available materials, sticks, stones, straw, boxes, stools, rope, to solve immediate difficulties; their ability to recall the setting of a problem (location of buried food) endured for many hours; they showed constructive imagination (as in joining two sticks in order to make a long one); but they made no preparation for future contingencies, except those immediately implied by the present; and they made no accumulation of material means for solving possible

¹ C. J. Herrick, *Brains of Rats and Men*, University of Chicago Press, 1926, p. 290.

² *The Mentality of Apes*, Harcourt, Brace and Co., 1925, pp. 275 *et seq.*; see also R. M. Yerkes, *Almost Human*, The Century Co., 1925, especially Chap. ix.

problems in the future. While certain apes have been taught, by long and patient effort, to say a few words, their natural language, if it may be called that, seems to be limited to the vocalization of emotional states. They undoubtedly have ideas since they often act with genuine insight; it is even possible that they convey ideational meanings to each other; but, if so, rarely.

The apes thus come very close to the necessary mental equipment for the development of rudimentary language and the beginnings of material culture. When we recall that man lived for probably hundreds of thousands of years in the simplest paleolithic and pre-paleolithic culture stages, we realize that the gulf between the anthropoids and fossil human types was not impassable by evolutionary processes. On the other hand, when we contrast the ape-world with modern civilization, we also realize what an enormous importance attaches to small additions to the mental powers.

On the intellectual side, we may note one similarity and three contrasts between man and his nearest competitors. In the first place, neither is equipped with numerous inherent behavior patterns, man even less than the apes. This does not mean that man does not have any inherent impulses to respond to stimulus in more or less definite ways, but merely that he has few, if any, modes of behavior which are so definitely limited and prescribed by the neuro-muscular structures that they are strictly comparable to the instincts of insects and birds.

In the second place, man has an enormously greater power of learning, or profiting by experience and training, so as to perfect his adaptation to his environment. In the third place, he differs notably in his powers of constructive imagination and abstract thought. These latter abilities are those which enable him, not merely to solve the practical problems of adjustment to environment, but also to carry on these uniquely human mental activities which result in creative thinking, in science, invention, art, and philosophy. In the fourth place, man differs from all other animals in the development of the powers of speech. Language is an essential element in the evolution of social organization and culture. In its absence group cohesiveness and coöperation could scarcely have risen above the animal level. Leadership and organization would have remained at rudimentary stages. Without it the power of thought itself must have been greatly

limited, and the ability to express shades of meaning wholly absent. All of these human superiorities are merely relative, or differences of degree, and yet they are the sole cause of those immense differences in mode of life, in adaptation to and utilization of environment, between man and animals.

ELEMENTS OF BEHAVIOR

The Elementary Psychological Fact. The elementary psychological fact is often said to be *response to stimulus*. This process is, however, rather complex. It may, in fact, be broken up into six phases. It begins with (1) a *stimulus* which is anything which will arouse reaction in the organism. There follows (2) the *excitation of a sense organ*, or receptive apparatus, so constructed as to be able to receive the stimulus. The stimulus itself furnishes no nervous energy; its function is to release the energy (electrical or chemical in nature) contained in the nervous structures themselves. Then comes (3) the *transmission* of the excitation along an *afferent* nerve to a nerve cell or center. Here occurs more or less (4) *correlation, or adjustment*, of the nervous impulse, a process which determines what shall be done with it. It is then (5) *transmitted outward along an efferent nerve* to muscular tissues, whose activation constitutes (6) *the response*.³ Each of these phases may vary greatly in complexity.

No organism can respond to any stimulus which it is not qualified to receive. Man is blessed with a marvelous set of stimuli receptors; and yet, there are sounds too high for the human ear and rays of light too short for the human eye. Moreover, children differ in the relative sensitiveness of their sense organs, so that they tend to react selectively to possible stimuli from the very first. There is a large class of stimuli, however, to which the human child is qualified to react, which does not exist for any other animal, namely, the accumulated culture or tradition of his community. This affects him primarily through his eyes and ears; and he reacts to it because of the enormous development of the correlating, or adjusting, apparatus represented by the central nervous system.

So far as human behavior is concerned, the most interesting of the above phases is the fourth. In the first place, the develop-

³ C. Judson Herrick, *Neurological Foundations of Animal Behavior*, Henry Holt and Co., 1924, pp. 12-13.

ment of the human brain is accompanied by an extraordinary expansion of the sensory correlation tissues. By this is meant that there is such a complex interconnection of nerve cells that an excitation received by one may be transmitted to countless others. In the second place, every reaction leaves behind some effect, a physiological memory. It is in consequence of these two facts that stimuli come to be *associated*, or correlated, in most intricate ways. In addition, this fourth phase has a further aspect, namely, the *coördination* of the excitation impulses so as to send them out along the nerves necessary to produce an *adjusted*, or *adapted*, response. It results from the correlation of stimuli and the coördination of responses that the organism *learns*, or modifies its behavior in consequence of experience; and also, is able to respond to even a simple stimulus with its entire body. In complex reactions this fourth phase may, therefore, be prolonged, or be highly deliberative.

Types of Mental Activity. For convenience in analysis the psychologists divide stimulus-response activities into random or impulsive movements, tropisms, reflexes, instincts, habits, and rational intelligence, with their attendant feelings, emotions, and sentiments. While it is possible to make logical distinctions between these types of behavior, it is necessary to remember that they merge into each other by almost imperceptible degrees. There is thus a gradation from reflexes, through instincts and habits, to the most highly conscious, deliberative, constructive type of reflective thought. But the lower and simpler forms of mental activity constitute large ingredients in the higher and more complex forms.

Random or Impulsive Movements. If we observe an infant we are struck with the constant activity of its arms, legs, head, and other parts. It is constantly giving expression to movements and sounds which have every appearance of being purely spontaneous, as having no relation to the external situation, or as lacking any quality of adaptation to environment. Such activities may be looked upon as the continuation of similar movements begun in the foetus before birth, and as serving a definite utility in the growth processes of the organisms. They are for the most part due to internal stimuli arising within the organism itself, and probably connected with its metabolic processes. They are, of course, limited by the structure of the organism, and hence

may be looked upon as expressions of the elementary neuromuscular units out of which will gradually be built the more complex and more adapted responses of the adult.

Tropisms. The beginnings of mental phenomena are to be found in elemental reactions of living things to external stimulus. Here are included the tropisms. The nature and variety of tropisms is not entirely clear, but they may be defined broadly as including those reactions in which the organism orients, or arranges, itself so as to equalize the stimulus on the two sides of its body. The organism equalizes the effect of the stimulus, or adjusts itself thereto, only when the two lateral halves of its body are equally affected thereby.⁴ Thus the plant turns toward the light; paramœcia arrange themselves symmetrically with reference to rays of light or heat, gravity, chemicals, and currents; the moth flies into the candle; the fish faces up stream. There are doubtless tropistic reactions among higher animals, as when drawn to the light, or to the rays of the sun, or to the shade. The way we stand in front of an open fire appears to be largely tropistic in nature.

Reflexes. A much more important type of stimulus-response in man is the reflex. This term is applied to the relatively simple but definite reactions of inherited psycho-physical structures to definite stimuli. Such structures, called *reflex arcs*, consist of a receptor of the stimulus, an afferent nerve, and an efferent nerve leading to the appropriate muscle. The human body, like most others, is full of them. Some common reflexes include the narrowing of the pupil of the eye in the presence of light, or its expansion in dim light; the moistening of the eyeball by the eyelids; the batting of the eye when an eyelash is struck by a cinder. They are largely unconscious, involuntary reactions; in their pure and simple forms, they are unlearned and repeat themselves with remarkable uniformity.

While usually carried on without the individual being aware of them, they may nevertheless stimulate sensory nerves and thus the individual may be led to give attention to them. This is particularly true of those which are to some extent subject to voluntary control, as for example, sneezing, swallowing, and others.

⁴ S. J. Holmes, *The Evolution of Animal Intelligence*, Henry Holt and Co., 1911, Chap. iii; Jacques Loeb, *Forced Movements, Tropisms and Animal Conduct*, J. B. Lippincott Co., 1918; and C. M. Child, *Physiological Foundations of Behavior*, Henry Holt and Co., 1924, pp. 230-231.

Reflexes are, as a rule, of the greatest utility in adapting the organism to the permanent conditions of the environment, or in carrying out with least effort a great variety of reactions necessary to bodily comfort and survival. In fact, such vital functions as breathing, circulation of blood, digestion and assimilation of food, and ejection of waste products are almost entirely controlled by reflexive mechanisms. So also are such basically important phenomena as the regulation of the secretions of the ductless glands, which are of the greatest importance not merely for the vegetative and reproductive functions, but for the preparation of the mind and body for flight, fighting, and endurance, and even for such subtle matters as moods and emotions.

It is obvious that the pure reflexes, being inherited neuromuscular mechanisms, will differ in animals of different species, and will show great similarity between animals of closely related species; but that there will be at least slight differences between individuals of the same species. Many obvious differences of individuals in such habits as walking, bodily movement, talking, smiling, and laughing are due almost entirely to differences in the inherent reflex patterns which have been built into the larger patterns of behavior. Here also should be included many differences in physiological functioning which deeply affect energy and mood. As we ascend the animal scale, we note an increasing modifiability of behavior. That is, the higher animals, and notably man, may acquire quite different modes of behavior under different conditions. If then we take the reflex as a sort of neuromuscular unit, out of which more elaborate behavior patterns are built, we must suppose that development of physical habits consists fundamentally of the processes whereby these simple units are joined together into ever larger and more intricate systems, much as the joining of numerous short-line railways gives rise to a completed unit.

The Conditioned Reflex. Something very similar takes place in the formation of mental habits. We may think of the cells of the brain and their interconnecting fibers as relatively simple neural units in infancy, and as being gradually built into correlated and coördinated systems which constitute the neurological basis of thinking and feeling habits. These structures, with all their connections, are given by nature, and new ones cannot be created by the activities or desires of the individual. But we

must remember that there are billions of neurones connected with each other somewhat like an infinitely complex telephone system. There are, consequently, a variety of different paths through which a given nervous charge may flow. It is much like an infinitely complex system of streets and highways, whereby one may travel in various directions, or by different routes, from one point to another. A system of moral beliefs and principles, with its attendant sentiments, is slowly acquired through the correlation of impressions (oral instruction, observation, reading, and experience). Here again individuality is dependent in part on differences in experience, and in part on original differences in the number of neural units and their connections.

This infinite complexity of structure constitutes the basis of plasticity, or modifiability, of behavior. As to modifiability, we may conceive the reflexes to be graded from little, or none, to much. At one extreme are those autonomic or self-regulating reflexes operating primarily through the sympathetic nervous system and concerned with the vital processes, such as circulation, breathing, and digestion. As we approach those subject to more or less modification by experience, we pass from those definitely formed by hereditary and growth processes and through which nervous energy necessarily flows; to those partially formed, through which the energy flows by preference; and then to a vast multitude along which nervous energy can be made to flow by the higher control centers of the brain. The basic method by which this redirection of nervous flow is accomplished is known as *conditioning the reaction*. It depends on the fourth, or correlating phase, of the stimulus-response unit. In Pavlov's famous experiment, a bell was rung each time a dog was shown meat. After several such stimulations, the ringing of the bell alone, without showing the meat, was sufficient to cause a flow of saliva.

Child training, or in fact the acquisition of behavior suitable for social life, is largely a conditioning of responses. If, for example, I hold a baby in my arms, it is very likely to try to poke its finger into my eye. The visual sensation due to the eye serves as a stimulus which arouses the exploratory movement. But, if I give the intruding finger a sharp rap each time it approaches the eye, the baby learns to modify his response to the visual sensation. The stimulus now arouses not merely the exploratory movement but also the memory of the painful rap; this unpleasant

sensation tends to inhibit the exploration. If, at the same time that I rap the finger, I say, "Baby mustn't," the stimulus comes in time to associate these words with the painful experience. After some repetitions the baby learns that the words alone are a premonition of unpleasant experience and will (sometimes) check, or alter, his behavior when some one utters the significant sounds. In this way the child's behavior becomes conditioned, or adapted, to his environment. Sights, sounds, smells, tastes, other sensations, and internal states come to have a complex variety of associations pleasant and unpleasant. In this manner the social

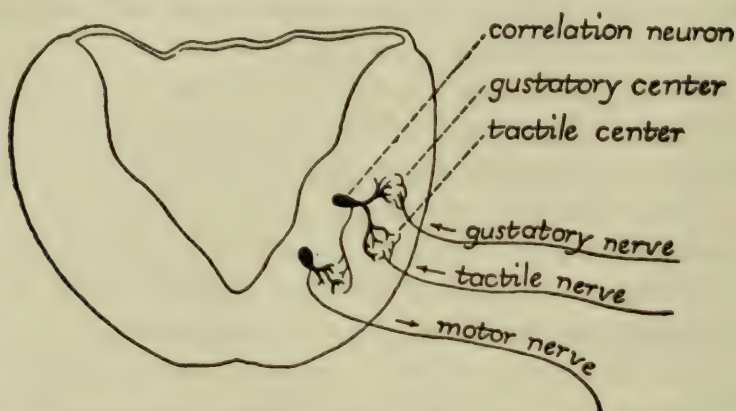


FIG. 44.—Diagram showing correlation of touch and taste sensations in a simple organism. If a food particle gives rise to satisfactory sensations through both tactile and gustatory nerves, they reënforce each other in the correlation center, and the impulse is sent out over the motor nerve, resulting in consumption. If one sensation is satisfactory and one is not, they may nullify each other, or one may dominate the other, depending on the hunger of the animal. It is through such associations of stimuli in the correlation or association centers of the nervous system that behavior becomes conditioned. Through them the organism "learns," or acquires habits. From C. J. Herriek, *Neurological Foundations of Animal Behavior*, Henry Holt and Co., 1924, by permission.

life to which the child must adapt himself conditions his innate tendencies, or shapes the patterns of neurones and nerves through which his nervous impulses run. The responses of an individual to the stimuli of daily life become conditioned responses. By thus very largely determining his likes and dislikes, the psychosocial medium in which a child develops determines his standards of taste, belief, and judgment. (Figure 44.)

Instinct: Loose Use of the Term. The recent progress in psychological study has shown that a very loose use of the term instinct had become general, even among psychologists. To ex-

plain an activity as due to an inborn instinct seemed to constitute a final and adequate explanation of the motives of conduct. In the absence of more detailed and accurate knowledge of the basis of human motivation, it had become customary to explain almost everything which men do as the expression of one or another inherent instinct. In a very elaborate survey, Professor L. L. Bernard ⁵ was able to show that the term instinct had been used as a universal key for the explanation of human behavior. Not only have various psychologists named more than a hundred specific instincts which they thought man manifested; and not only have the vast majority of psychologists talked freely of the maternal instinct, the fighting instinct, the acquisitive instinct, the gregarious instinct, and others; but even learned writers have indiscriminately explained special kinds of behavior as due to a dramatic instinct, a musical instinct, a painting instinct, a mechanical instinct, and so on.

Lists of Instincts. The psychologists thus present the wildest confusion as to the number of instincts. Whereas the Freudians are inclined to recognize only the two instincts of sex and self-preservation, Professor W. Trotter ⁶ recognizes three: sex, food, and gregariousness. Some others recognize these three, together with one or two others, such as parental, curiosity, and self-assertion; and still other psychologists, equally capable, present much longer lists. Thus Professor William McDougall ⁷ describes thirteen major instincts and seven minor ones as follows: *Major Instincts*: Parental or protective, combat, curiosity, food-seeking or hunting, repulsion, escape, gregarious, self-assertion, submission, mating or pairing, acquisitive, constructive, appeal. *Minor Instincts*: Laughter, scratching, sneezing, coughing, defecating, urinating, falling asleep (?).

Professor S. S. Colvin ⁸ finds thirty instincts manifesting themselves in the developing individual in somewhat the following order: fear, anger, sympathy, affection, play, imitation, curiosity, acquisitiveness, constructiveness, self-assertion (leadership), self-abasement, rivalry, envy, jealousy, pugnacity, clannishness, hunting, predation, migration, love of adventure and the unknown, superstition, sex love, vanity, coquetry, modesty, love of nature,

⁵ *Instinct: A Study in Social Psychology*, Henry Holt and Co., 1924.

⁶ *Instincts of the Herd in Peace and War*, The Macmillan Co., 1924.

⁷ *Outlines of Psychology*, Charles Scribner's Sons, 1923, Chap. v.

⁸ *The Learning Process*, The Macmillan Co., 1912.

love of solitude, æsthetic, religious, and moral emotions. Here is an obvious confusion of instincts, emotions, and acquired modes of behavior. There are many such lists. All of them are lists of universal human traits, but are they lists of instincts? We cannot hope to answer this question with entire satisfaction at the present stage of psychological confusion, but perhaps some discussion of it may prove valuable.

Meaning of Instinct. There is still much dispute among psychologists as to the nature of instinct. There are three quite different ways in which an instinct may be conceived. There seems to be a tendency in some quarters to conceive it as a special psychic entity of animistic, or soulful, qualities which at once drives and guides the organism in carrying out activities important for individual and racial survival. This view of instinct is like that view of mind which thinks of it as a spiritual entity separable from the brain, but using the brain, nervous system, and muscles as agents for the accomplishment of its purposes. Such a view, though popular, violates the principle of efficient causation, which the logic of scientific method requires. A second view is represented by those who make lists of instincts, such as the above. They think of them in terms of the "ends" or "objects" achieved, such as play, food, sex, parental, acquisitive, and constructive instincts. Thirdly, there is the purely behavioristic view which conceives instinct in terms of patterns of action. This is a mechanistic view which seeks to explain instincts in terms of nervous structures and their contained energy.

In accordance with this view, instincts are conceived to be much like chains, series, or sets of reflexes. The stimulus, internal or external, sets off the first reflex, this completes its response by setting off the next, and so on through a more or less elaborate pattern of action. A set or chain of reflexes is illustrated very clearly by the chewing, swallowing, and digestion of food. Thus viewed, the instincts are inherited, so that in their purest form they do not need to be learned. The young spider, making her first nest, weaves it according to the special pattern of her species. At the same time, experience improves the facility even of such instinctive activities. Moreover, even such definite behavior patterns are capable of some modification or conditioning by experience, and of some adjustment to the actual situation. They, of course, differ from species to species, but are similar in in-

dividuals of the same species. Instincts are thus viewed as adapted responses, serving a purpose in the life history of the individual or species; hence, they may be explained by the same biological processes which have brought about other physical adaptations to environment. It thus becomes impossible to draw a sharp line between reflexes and instincts. In consequence, the literature of psychology is full of differences of opinion as to whether such activities as sucking, swallowing, the assimilation and disassimilation of food and waste products, the processes of bodily metabolism, breathing and other vital processes, sneezing, coughing, laughing, scratching, and sleeping, should be looked upon as instincts, or reflexes. The reason for this is that an instinct, conceived as a complex reflex, differs from the latter only in degree, not in kind.

Instinct appears, however, to be on a higher plane of psychic activity than the reflex. Professor Kurt Koffka⁹ points out that the typical reflex is "passive," awaiting its stimulus, while the typical instinct is "active" or "dynamic," seeking its stimulus. This distinction may be due primarily to the fact that the reflex is a simple response and the instinct a complex one. But, even so, the food instinct, for example, is a *drive to activity*. It may start with metabolic bodily changes, which set up contractual movements in the stomach, which in turn lead to a variety of activities ending only with the restoration of bodily equilibrium as regards hunger. The instinctive action is persistent. It is also adjusted to its stimulus and subject to a degree of modification, or adjustment to the situation, through perception and the coördinating powers of the central nervous system. Complex instinctive behavior thus appears much like voluntary intelligent behavior. It differs from the latter, however, in very fundamental ways: it is relatively stereotyped in form; it is unlearned. There are, thus, three logically separable aspects of genuinely instinctive action: (1) back of it is an innate urge, or impulse; (2) its pattern is a part of the biological inheritance; (3) its modifiability, or adjustability to new situations, is small. While human behavior also is initiated by impulse, its patterns not only are acquired to a very great degree through experience, but they are highly modifiable by experience and adjustable to circumstance.

⁹ *The Growth of the Mind. An Introduction to Child Psychology*, trans. by R. M. Ogden, Harcourt, Brace and Co., 1924, p. 100.

Instincts in Man: Special Difficulties. The present confusion regarding human instincts is largely due to this fact that reflexes shade into instincts, and instinctive behavior into intelligent behavior. Moreover, the long period of human infancy makes possible an extensive conditioning of the inherent random, reflexive, and instinctive responses, so that very soon it is impossible to tell what is instinctive and what is learned, or acquired, behavior. The human brain continues to grow for fifteen to twenty years, and the body even longer. New psycho-neural and psycho-physical reflexes and behavior potentialities are unfolded during all these years; but the manner in which they express themselves depends to a greater or smaller degree upon the previous experience of the individual. Sex behavior during adolescence, for example, is a composite of new instinctive impulses and a multiplicity of habits and controls already established. It is obvious that such behavior, as the coyness of the female and the display activities of the male, contain both instinctive and acquired elements. How much there is of each is the bone of contention. This matter is rendered well-nigh insoluble by the fact that we may suppose the brain and spinal cord themselves to be the seats of instinctive impulses having to do with interests of the self. Whether this is so or not, the new energies developing within the central nervous system from infancy to maturity are an inextricable compound of native and conditioned responses.

All this is as it should be in a creature able to adapt itself to many situations. The more completely instinctive behavior is, the more stereotyped it is; and hence the smaller capacity for learning new and different modes of response.¹⁰ Since man's capacity to learn, or to acquire modes of behavior suitable to different environments, is quite unparalleled in the animal kingdom, we may be sure that he has few, if any, unmodifiable instinctive behavior patterns. In fact, it may be confidently asserted, on the basis of recent researches, that he has even few reflexes which are not subject to conditioning and reconditioning. This, of course, does not prove that he has no instincts, for the instinctive behavior of insects and birds is also capable of conditioning, as it is also modifiable, so as to adapt it to varying situations. *It rather means that the reflexive and instinctive elements of human*

¹⁰ See L. L. Bernard, *Introduction to Social Psychology*, Henry Holt and Co., 1926, Chap. viii.

behavior are capable of being combined in multitudes of ways, or of being built up into complex habit systems.

Such a view, however, must not lose sight of the fact that, in all times and places, men manifest the psychic traits listed above. Such manifestation, doubtless, varies from individual to individual, and from one social medium to another, but they are all of them well-recognized human attributes. Moreover, many of them have high degrees of similarity in their manifestations among all peoples. This would indicate, at least, that the psycho-physical structures which are passed along by human inheritance contain the elements out of which such traits are built. Indeed, many of them, if not most, are also manifested by anthropoids and animals still lower in the evolutionary scale, again showing that they not only are potential within the hereditary basis of behavior, but, like the reflexes and instincts more strictly defined, they must have played an important rôle in the survival of the species which manifest them.

Internal Urges, Predispositions, and Aptitudes. We are thus landed in a dilemma. There are, obviously, universal human traits; but, on the other hand, human behavior is so much a matter of youthful training and experience, that it can be understood only when these are known. *For most of the above traits, we must abandon the instinct concept in the sense of hereditary behavior patterns, and yet we must account for the fact that human nature is much the same everywhere.* We can do this by substituting for the term instinct as a sort of universal key to behavior, the terms internal urges, or drives, predispositions, and aptitudes.

By an internal urge, impulse, or drive is meant a need of the organism, *an internal propulsion to action.* There would seem to be at least five: food, sex, bodily security, activity itself, and the ego. Nearly all organisms manifest the first four, while the last attains great importance only in the case of man. We discuss it below under *Egocentrism*. It would be possible to show that these drives are implicit in all human behavior. It is in consequence of them that every organism is dynamic toward its environment. These drives are in part physical, or neuro-muscular (food, sex, activity, bodily comfort, and safety), and in part neural, or psychic (activity and the need of egoistic satisfactions). They do not, as do instincts pure and simple, lead to stereotyped patterns of behavior, but are internal needs which may be satisfied in a

variety of ways. The foregoing list is doubtless not complete. In any case, there is considerable ground for supposing that man has also parental and herd impulses. In fact, it is quite proper to say that there are a multitude of native impulses. Every psychophysical structure in the body contains neural energy, which may be released by stimulus, and thus constitute an impulse to action.

By a predisposition toward a trait is meant *a tendency to develop that trait easily and readily under the normal conditions of social life*. Back of the predispositions are native urges and impulses, which express themselves in ways which we label as combat, curiosity, hunting, acquisition, construction, self-assertion, submission, and the like. All of these are general, rather than specific, modes of action. They take on a great variety of different forms under the infinitely varied circumstances of social life. The miser, the boy who fills his pockets with odds and ends, the art collector, the business man, all manifest acquisitive behavior. Business men taken in all their range and variety manifest this type of behavior in a multitude of forms. The other traits in such lists as Colvin's are likewise highly variable in the specific activities in which they are manifested. Nevertheless, in the case of each trait, there is a core of similarity. It is this core which has been called an instinct. The only similarity to an instinct, however, is in the fact that there is an urge or impulse back of the behavior. But it is obvious that even this is far from uniform for all cases of acquisitive activity. The urge may be food, sex, security, desire for prestige, mere habit, or other less obvious motivation. The predispositions thus are generalized modes of human activity.

Closely allied to predisposition is aptitude. A predisposition might quite properly be called an "instinctive tendency," because it connects directly with an internal drive and is universal among men. An aptitude, on the other hand, is *either a general or special ability to develop certain skilled activities with facility*. One person may have an aptitude for playing the piano, or operating a typewriter, and another for politics, or bricklaying. By this is meant merely that the skillful and elaborate behavior patterns represented by these activities are readily acquired by these persons. It would be erroneous to say that they are propelled toward these activities by an inherent need, or because of

musical or political instincts. The same is true of all our vocational and professional skills. Differences in aptitudes are observable everywhere, among children, workmen, artists, professional men and women. They affect the acquisition of both physical and mental habits, and take quite different forms in different cultures. Like the predispositions, they have an hereditary basis in the sense that they are potentialities of human nature; but they develop only under the stimulation of the social milieu, which is the sole explanation of their particular form.

We may illustrate by asking whether man has a constructive instinct. Obviously not. A constructive instinct would lead him to make certain things in certain ways, like a bee or a wasp. We may explain his tool-making and tool-using activities by the following: desire for food; hands marvelously adapted to manipulate things; curiosity, or mental alertness, due to bodily needs; associative memory; and imagination. Once tool-making is hit upon, it becomes a social habit and a part of the social inheritance. Man is thus predisposed by his bodily needs and structure and by his mental capacities, toward constructive activities. The skill he manifests in the constructive activities of his age is limited by his aptitude therefor. Instead of an instinct, we have the drive of need, utilizing the physical and mental powers to establish a state of bodily equilibrium.

Habits. Out of the random movements, reflexes, impulses, predispositions, and aptitudes are built the habits of acting, feeling, and thinking which are the socially significant aspects of human nature. It is with our habits, constantly modified by our general intelligence to fit certain elements of our ever-changing environment, that we carry on the varied activities of daily life. Habits are like instincts in their impulsive nature, that is, their tendency to go off upon the proper stimulus. Professor R. W. Woodworth ¹¹ has shown that every habit develops its own impulse; this becomes stronger and more facile with repetition, so that habits come to contain the prepotent impulses of life. This should not be interpreted to mean that habits create their impulses; it means rather that the impulses of the body are organized into habitual modes of expression. When we say

¹¹ *Dynamic Psychology*, Columbia Univ. Press, 1918, especially pp. 120-127; also John Dewey, *Human Nature and Conduct*, Henry Holt and Co., 1922, p. 25, *et passim*.

something is done "instinctively" (the heroes of fiction always "instinctively" do the right thing at critical moments), we might more accurately say that it was done in a manner representing the organized and habitual expression of native impulses (random and instinctive). Habits, like instincts, may go off at the wrong times, or in ways not suited to the occasion. They are, in fact, chains of automatic responses linked together like chains of reflexes, so that each step tends to release its successor.

Habits are like instinctive predispositions in another respect, namely, that they are best viewed, not as simple stereotyped behavior patterns, but rather as powerful tendencies to respond in general ways. They give rise to general rather than specific reaction patterns, because the circumstances of life in which they express themselves are more or less variable. As Professor Dewey ¹² says: "Habit means special sensitiveness or accessibility to certain classes of stimuli, standing predilections and aversions, rather than bare recurrence of specific acts." In this manner, habits coördinate and reënforce the native reflexes, instincts, and predispositions on which they are built.

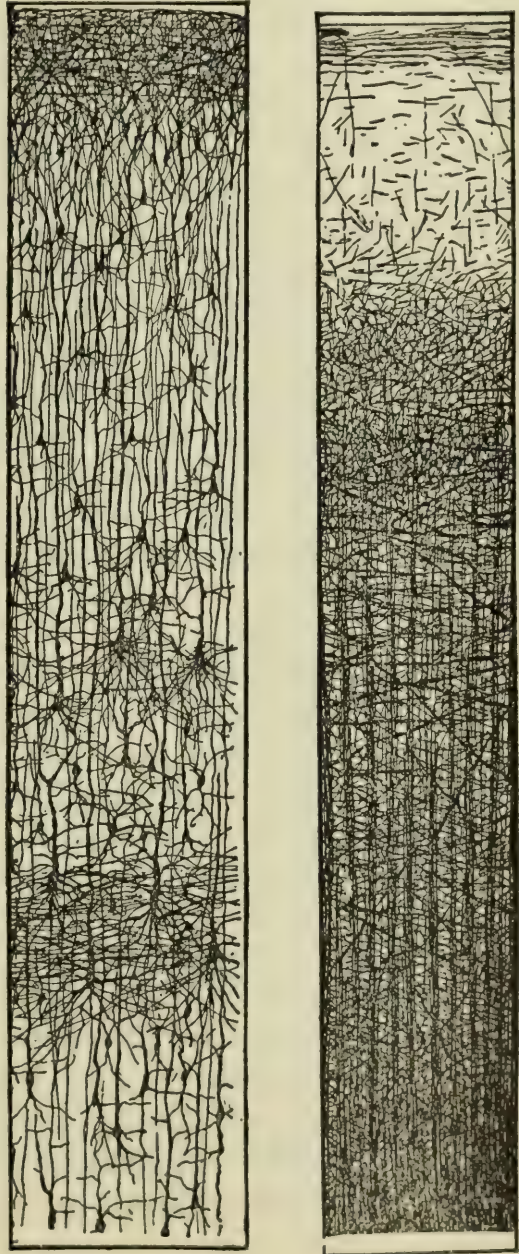
But habits are superior to instincts in one enormously important aspect, namely, that they permit a greater plasticity, or adaptability, of activity to environment. By this is not meant that habits, once formed, are easily discarded and replaced by new ones. On the contrary, old habits, whether of action, emotion, or thought, are often very difficult to alter. By the adaptability of habit is meant that a new generation can readily acquire the habits suited to new social situations; or that individuals moving to new environments can acquire new modes of behavior. If our activity were as fully governed by instinct as is that of the bee, such versatile adaptability would be impossible. In the absence of well-defined instinctive patterns of behavior suited to meet the major problems of adjustment to life conditions, man is equipped with a multitude of smaller patterns, or mechanisms, which are capable of combination and coördination in all sorts of ways. So complex is man's nervous system, with its billions of neurones, that he can, by mental effort, cause a flow of nervous energy along channels where otherwise it would not flow. This is precisely the function of the cerebral cortex and subsidiary control centers in the adaptation of behavior to situations. (Figure 45.)

¹² *Op. cit.*, p. 42.

In this way the innate equipment can be built into a very wide range of life habits. It is this astonishing plasticity of habit formation that makes it possible for every child to acquire the cultural modes amidst which he is reared. Learning is, in fact, a process whereby the innate tendencies and aptitudes are conditioned by experience, and built up into behavior patterns adjusted to the requirements of the physical and social environments. In this process of habit formation the social medium plays a very large rôle in repressing, selecting, and encouraging the innate tendencies and capacities, and shaping them into behavior which wins social approval. In this way not only the habits and manners of daily life and the special skills of work and play are acquired, but also ideals, sentiments, and standards of judgment.

But it must not be supposed that the pressures of the social environment can make the innate elements into any sort of finished product. Many of the habits of life may be acquired in any of several ways, or not ac-

FIG. 45.—Sections of the cortex of the human brain, greatly magnified so as to reveal the complexity of structure. The left view shows the cells, their dendrites, and a few axons; the right view shows additional axons, afferent and efferent, with some of their finer branches. Imagine the latter superimposed on the former and one gets an idea of the extraordinary correlation, or association, powers of the brain. (After Cajal.)



quired at all, without altering the basic elements of the personality. One may be, as regards all the major traits of his personality, the same person whether he speaks German or English, sells bonds or teaches school, believes in Catholicism or Buddhism, votes the Republican or Democratic ticket, or plays golf and tennis, or neither. This is because the native predispositions and aptitudes which are based on the ways in which the main lines for the flow of nervous energy are laid down in the nervous structures, guide and limit the development of personality traits. Professor Dewey expresses the view that our innate instinctive tendencies are so overlaid and submerged by habit as to be of little significance. At the same time he says:¹³ "Habits are not native and original. They are outgrowths of unlearned activities, which are part of man's endowment at birth." Or again, "Truly humane education consists in an intelligent direction of native abilities in the light of the possibilities and necessities of the social situation." Dewey's view differs from ours only in his lesser emphasis on the rôle of the "biological aptitudes" and inherent impulses. We see in them both the components and the limiting factors in habit formation. In our view, the human organism is the dynamic agent in habit formation. The social environment serves as stimulus and as selective (approving and disapproving) agent; but it is powerless to elicit behavior which does not lie within the potentialities of the inherent structures.

It follows that individuals differ greatly in the facility with which they can acquire specific habits or skills. This is amply attested by experience of both parents and teachers in training children. The native dispositions and aptitudes not only set the limits to possible development in different directions, as anyone knows who has tried, for example, to develop skill in playing a musical instrument. They also exert a good deal of guiding and selecting influence upon both stimuli and effort. We may here recall the distinction made in the previous chapter between organic responsiveness and organic plasticity. While the human organism is plastic, in the sense that it takes on habits of life like the social medium in which it grows up, it is more accurate to think of the child as building its life habits out of its own responses to the stimuli about it. A moron remains a moron, even

¹³ *Op. cit.*, pp. 88 and 96.

amidst the best of opportunities. The first responses of an infant are necessarily made in harmony with its unconditioned reflexes. Since the earlier responses condition the later ones, the organic structures tend to give form to all the habit systems built out of them. Moreover, children very early show preferences for certain stimuli as against others. They bring more effort to bear upon the acquisition of behavior that interests them; and what interests them is that which harmonizes with the innate dispositions and aptitudes. There is an especial satisfaction in doing the things we can do well, and such habits develop powerful drives of their own.¹⁴

Intelligence. Having developed the thesis that "habits formed in process of exercising biological aptitudes are the sole agents of observation, recollection, foresight, and judgment," Dewey adds, "a mind or consciousness or soul in general which performs these operations is a myth."¹⁵ What then do we mean by intelligence? We mean those mental capabilities wherein man most excels all other animals. These are primarily associative memory, ability to learn from experience, and ability to adjust behavior to new and complex situations. Intelligence is thus at the opposite pole from instinct, though even the insects in which instinct is most perfectly developed show some intelligence; and man, in whom intelligence is highest, has instinctive urges and innate reflexes.

Intelligence is a manifestation of the powers of the cerebral cortex, which in man attains an unrivalled development. Its function is to correlate stimuli and to coördinate the various powers of mind and body in responding thereto. It guides and controls the learning processes, whereby the unformed and loosely formed reaction patterns of the infant are built up into habit systems. If the cerebral cortex be removed from a pigeon, it "leaves the animal deficient in intelligence, ability to learn by experience, and personal memory."¹⁶ It is in this cortex that are found the most important association centers, and hence the powers of generalization, abstract thought, invention, and creation. It is because these powers enter into the development and

¹⁴ Cf. Woodworth, *Dynamic Psychology*, pp. 69 *et seq.*; reread in Chap. VI, pp. 259-261 above, the section, "Organic Plasticity and Organic Response."

¹⁵ *Op. cit.*, p. 176.

¹⁶ C. J. Herrick, *Neurological Foundations of Animal Behavior*, Henry Holt and Co., 1924, p. 213.

the constant modification of habit, that what we call the intelligence level is so fundamental in determining the success of the individual in coping with the varied situations of life. (Figure 46.)

What then is the relation of intelligence to habits? As just noted, it enters into their formation, and has much to do with their efficiency. There are intelligent and unintelligent habits. If our environment were perfectly standardized, our habits would be adequate to all situations. Once trained, we could go through life as more or less unconscious automatons. Something like

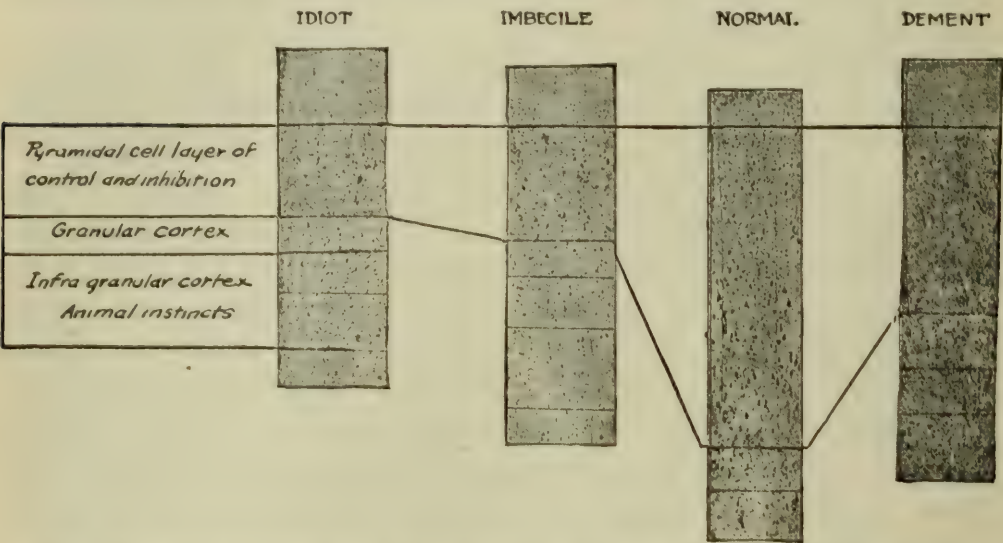


FIG. 46.—Cross-sections of the cerebral cortex of idiot, imbecile, normal, and insane, in order to contrast the relative development of the pyramidal layer. “The brain cells of defectives are characterized by (1) numerical deficiency; (2) irregular development; and (3) imperfect development of the individual cells.” From R. J. A. Berry, *Brain and Mind: the Nervous System of Man*, The Macmillan Co., 1928, by permission. Professor C. Judson Herriek (*op. cit.*, p. 277) says: “The pyramidal neurons of the supra-granular cortex serve the individually acquired associations and in general the higher mental processes.” The above drawings show clearly why a congenital imbecile remains an imbecile, and why bright children learn faster and continue to learn longer than dull ones.

this is the ideal of certain efficiency experts. But we are actually under the constant necessity of readjusting our habit systems to the ever-changing circumstances of life. Moreover, the stimuli that affect us are constantly releasing impulses to action which conflict with each other. Hence the need of reflection and deliberation. Even these processes are, however, deeply affected by the desires, standards of valuation, mental images, and associations

which have become habitual, and have thus gained a prepotent influence in our reasoning processes. Here again the intelligence level becomes important. Individuals of higher intelligence, due to the greater complexity of their cortical structures, show marked facility in making new associations, in breaking up old habits, and in forming new ones. Versatility and the powers of constructive thought are based on the powers of the neural structures to make new correlations and to coördinate them into new modes of action.

Summary. The above conclusions regarding the "Elements of Behavior" are necessarily tentative in the present state of knowledge. We need not resurvey all the main points, but the main position may be restated. We have taken a view midway between those who hold that the human mind and social institutions are merely expressions of certain instincts, and those who hold that there are no instincts and that the mind is almost wholly a result of the social medium in which it develops. Human nature is much the same everywhere, because (1) the body, including the brain and nervous tissues, results from processes of heredity and growth; (2) these innate structures not only set limits to the development of traits, but give them certain characteristic norms; (3) the drives to activity, both cerebral and physical, are the organic and psychic needs, that is, the needs of the body and also the needs of the self, or ego, for security and equilibrium with the social medium. For these reasons, the main outlines of the human personality are laid down in the psycho-physical structures.

At the same time, the overt behavior of men differs enormously from culture to culture. This means that on the same physical basis can be reared quite varied superstructures of habit. This is due to the fact that the neural units are so interconnected that they can be conditioned, combined, and correlated in many different patterns of acting, thinking, and feeling. Out of the inherent reflexes, impulses, predispositions, and aptitudes, under the stimulation of the social medium, are elicited and standardized those modes of reaction which win approval and perfect individual adjustment to the life about him.

SOCIALLY SIGNIFICANT HUMAN TRAITS

The Traits for Discussion. If we inquire what traits are especially significant for social life, we think first of intelligence.

This is undoubtedly correct. Man's powers of abstract thought are undoubtedly the most unique and marvelous psychic phenomena in the world. They are implicit in every feature of social life. Nevertheless, we here take them for granted. We prefer to discuss briefly some of those traits regarding which there is more controversy, but which are of great significance for all questions of social life and organization. We wish particularly to throw some light on the question why there is a balance between human altruism and selfishness, and on the psychic basis of permanent social problems.

Activity. A basic physical need found in unusually high development in man is that of physical activity. The human infant, during its waking hours, displays ceaseless activity. Many of its movements are purely random or wholly undirected and must therefore be due largely to conditions arising within the growing organism itself. This innate tendency toward a spontaneous display of bodily energy develops into all sorts of play activities, both organized and unorganized. It may be presumed that the actual movements involved in these activities rest on innate psycho-physical mechanisms and express types of response to which the organism is predisposed by these mechanisms. Play is a socializing tendency of the first importance in that it aids in developing the psycho-social attitudes essential for coöperation and mutual understanding. It is also an important preparation for some of the major life activities such as hunting, warfare, leadership, and following. Among primitive peoples particularly, many of the play activities are directly preparatory to the activities which the individuals will carry on when they become mature. Even in our highly sophisticated society there is still a striking difference between the play activities of boys and girls. Moreover, there is a decided tendency in the modern education of young children to organize the inherent tendency to activity, partly by means of play and partly by means of formal direction, so as to build up basic physical and mental habits preparatory to life activities and social adjustments.

Among the higher animals there is also, as a rule, some manifestation of similar *mental* activity. Even the amoeba and other protozoa manifest a constancy of activity which may be interpreted in part as the infinitesimal beginnings of curiosity. The lower organisms, as well as the higher, show an enormous amount

of trial and error activity on the basis of which they learn, or acquire, habits of more precise adjustment to their life conditions. While these trial and error activities may be due purely to psychophysical conditions within the organism, they develop by imperceptible degrees into the organized and directed curiosity of the scientific researcher and explorer. There is, of course, a limited range of stimuli or objects to which any animal will give attention, for the simple reason that its mental powers are necessarily correlated with its life conditions. In no species is there found any great surplusage of mental capacity. Consequently, the inherent tendencies to mental activity rise with the multiplicity of elements in the environment to which the organism must adjust itself. While curiosity is much higher among the mammals than among earthworms, it reaches its highest pitch only in the human infant. Moreover, among men it is higher among the gifted than among the dull, showing that curiosity, whether in the form of the random, spontaneous searchings of the child or the directed and sustained research of the scientist, is fundamentally an inherent tendency on the part of the organized nervous structure to display its internal forces in some kind of activity.

As with the physical activities, so with the mental, the spontaneous activities of play constitute an important agency for the development of habits and powers which serve very powerfully to adjust the individual to its environment. The mental aspects of play are particularly important for the adjustment of the individual to his psycho-social environment, his social tradition, and his fellow beings. As a spontaneous activity of the organism as a whole, play includes some expression of a great variety of inherent tendencies, from such primary ones as food and sex, to the highest type of mental predispositions and capacities, such as sympathy, justice, coöperation, exertion and sacrifice for group ends, grit, competitive power, constructive imagination, analysis, and generalization.

Basic Physical Needs. Since mind is the agency for the adjustment of the organism to its envioning conditions, the largest part of the activities of any organism will center around its basic physical needs. In man, as in animals generally, the fundamental needs are food and sex. These two represent the most important internal drives to activity. Philosophers and poets have often pointed out that love and hunger rule the world.

By this, of course, they meant that love, leading as it does to propagation and hence to increase of numbers, tends also to accentuate the force of hunger in human affairs. Since love is itself a well-nigh irresistible impulse, and since the avoidance of hunger constitutes the most fundamental concern of man in all times and places, it is clear that these two impulses, arising as they do in the very necessities of organic subsistence and survival, constitute the most dynamic of all impulses to behavior. They give rise to the most nearly universal, the most permanently important, and the most absorbing of all human activities.

A. *The Economic Needs.* The finding, production, and refining of food constitute by all odds the principal occupations of mankind. Together with the making of clothing and the building of shelter, which become bodily necessities outside of the torrid zones, the activities centering around food constitute man's principal relations with nature and nearly the whole of his economic interests. In whatever stage of evolution we find him, we note that most of his positive exertions are in the direction of hunting, fishing, food raising or food manufacture, and the similar production of clothing and shelter. In advanced societies, the contact of a large percentage of individuals with food-getting, clothing-making, and house-building becomes more and more indirect and less and less personal. But this should not obscure the fact that the principal concern of the modern worker is to secure money wherewith to buy the food, clothing, and shelter necessary for himself and those who, with him, constitute a self-dependent economic unit. We may, therefore, say that the fear of hunger constitutes the chief disciplinary force in the lives of millions of men, even in our own civilization. The operation of this force is much clearer in primitive societies than in our own, because of man's more immediate and direct contact with nature. With us the accumulated resources have become so vast that the danger of starvation appears remote. Life has become much safer and thus more free from fear as its standards have been raised. And yet, if it be true that the upper half of modern society is struggling primarily to improve its standard of living, it is equally true that the lower half is strongly driven by the ever-present pressure of the elemental necessities for mere bodily comfort.

B. *Sex.* Sex constitutes an internal drive of nearly equal sociological importance. In its broader implications it includes

not merely the satisfaction of individual cravings, but a large part of the economic activities mentioned above. As already intimated, the individual, in seeking a satisfaction of his own bodily urges, is led to mating and to reproduction. Because of the tremendous force of the sex impulses and the necessity of regulating and stabilizing them, all societies have established some form of family. This is an institution which serves to canalize the expression of the sex forces, to give them social regularity, and to establish responsibility for their consequences. The family thus becomes the basic social unit, partly because it is the primary unit through which the race is perpetuated, and partly because it is the primary unit through which the elementary wants of food, clothing, and shelter are satisfied. It is for these reasons that the family is the institution about which nearly the whole life of the feminine portion of the population centers. Male man also is firmly tied thereto, partly by his instinctive urges (sex and parental), and partly by the integration of his economic activities thereby.

We discuss the social significance of the sex urge more fully in the chapter on the family. We may here, however, add a word regarding its strength and the necessity of its regulation. Some of the more sensational psychoanalysts have sometimes implied that most of the neurotic and psychotic abnormalities of modern society are due to the repressions of sex impulses. They have implied that the attainment of psychic normality requires a more or less unrestrained sexual indulgence. Nothing could be further from the truth. Repression in itself is not an evil. Quite the contrary, it is an absolute essential to orderly and intelligent behavior. One cannot form good, that is, efficient, habits of life without it, nor learn to think logically and effectively. The problem of achieving satisfactory sexual adjustment in our complex and rapidly changing society is manifestly difficult, but nothing is clearer than that it requires restraint. The effort to elevate the sex relations from the level of mere indulgence of an appetite, to the level of mutual love and affection, requires the cultivation of a delicacy of feeling, which can only be attained by a slow process of psychic conditioning. It is not repression which is evil, but unsuccessful repression, that is, repression which does not adequately coördinate the impulses into adjusted habit systems.

Civilization is largely based on repressions, that is, on the development of institutionalized controls over conduct. It could be easily destroyed by a general liberation of instinctive impulses. These latter would then lack guidance, and would at once lead to conflict and destruction. "In obedience to law is liberty," is true in the large sense that the absence of convention leads to chaos and the destruction of all liberty. Social advance requires not the elimination of social rules, but their steady modification, so as to keep them in harmony with the ever-changing context of social life, and with the enlarging knowledge of human nature. The sexual urge in civilized man is much more powerful than is necessary for the mere perpetuation of the race. Social strength and permanency are, therefore, enhanced when it is, for the greater part of the population, harnessed to family responsibilities. At the same time, it is quite clear that social taboos have prevented its adequate study. What is particularly important is more knowledge of (1) how children should be psychically conditioned so as to reduce the emotional conflicts due to sexual impulses; and (2) how social standards can be modified so as to satisfy at once the requirements of social strength and permanency and the larger happiness of men and women in the actual state of our social life.

Gregariousness in Man. There is a sharp difference of opinion as to whether man has a herd, or gregarious, instinct. Whether he has or not, he acts as though he did have. This may be the result of his early and long conditioning to group life, but he is so easily conditioned thereto, and manifests the traits of a herd animal so clearly on many occasions, that the presumption of a native tendency seems plausible. In last analysis, it makes little difference to the social scientist whether we attribute gregariousness to an inherent bent or to training and experience. The elemental manifestations of the herd instinct are: (1) huddling together, (2) running in the same direction, (3) suggestibility in times of group danger, (4) discomfort in isolation, and (5) manifest pleasure on being restored to the herd. Man clearly manifests all these traits. He likes to lose himself in a crowd; he readily follows the throng; he becomes as suggestible as a scared animal in times of danger; solitary confinement is one of the most dreaded punishments. But all these and other aspects of gregariousness, some believe, can be explained as the results of the long condition-

ing to association in consequence of the helplessness of human infancy. The child learns to feel a sense of comfort and security when with others; it is afraid when alone, because this is an unusual experience, and because it deprives him of actual protection.

Nevertheless, animals differ greatly in their predispositions toward association. The cat, for example, although accustomed to association with other kittens from birth onwards, soon takes on a relatively solitary mode of existence. Dogs show a greater tendency toward association with each other and with humans. The anthropoid apes and baboons are all more or less gregarious. Men everywhere and always live in groups. This cannot be due entirely to infantile habits, for we have to answer the question, How and why did the first association among men begin? This was a result of (1) fortuitous accident, or (2) deliberate foresight, or else (3) it grew out of the necessities of life. The fact that a herd tendency is observed among mammals generally, that it is manifested by man's nearest relatives in the animal kingdom, and that prehistoric as well as modern men have always lived in groups, suggest that the tendency toward association is not an accident, nor yet due to deliberate intent, but grew out of the necessities of life.

Human Associative Tendency Rooted in the Struggle for Existence. This herd tendency on man's part is, like the same tendency in other animals, rooted in the struggle for existence. Peter Kropotkin¹⁷ pointed out that coöperation, or mutual aid, among members of the same species was very widespread, nearly universal, in the animal kingdom. If we inquire into the reason for this we shall find it in the advantage which such aid gives in the struggle of the species to maintain itself in competition with other species and the forces of nature. When we observe the enormous number and variety of animal congregations, such as schools, swarms, herds, and flocks, we may be quite sure that biological advantage has implanted this tendency very deeply in the animal kingdom. The advantages from such close association affect the most important aspects of the struggle for life. In the first place, it facilitates the acquisition, refining, and storage of food, as among swarms, packs, and hordes. In the second place, it increases the ease of reproduction. In the third place,

¹⁷ *Mutual Aid Factor in Evolution*, McClure, Philips and Co., 1902.

it improves the possibilities of protecting and nurturing offspring, thus reducing the death rate. In the fourth place, among many species, it constitutes an important factor in warding off enemies, either through the giving of alarms, or the superior efficiency of combined resistance over the single-handed struggle. Finally, it elevates the power of attack.

A primary consideration here is the natural helplessness of the human infant. John Fiske long ago pointed out that this would require the parents to remain together for a long time, a necessity giving rise to mutual sympathy and capacity for coöperation and altruistic consideration of others, and leading finally to larger group formation. There is doubtless much truth in this. Unless the parents had remained together, the offspring would have perished and the race come to an end. But would the mating instinct be sufficiently strong to keep the parents together during infant helplessness? This we do not know, but it seems doubtful in the absence of a strong predisposition toward parental care and protection. Thus sex, parental, and gregarious traits merge into a vast complex. They are all necessary for human survival. They are all human predispositions, or instinctive tendencies, in the sense that man's internal drives propel him toward their manifestation and he develops them as universal characteristics.

Gregariousness, Consciousness of Kind, and Group Formation. Mere gregariousness, however, would not result in social groupings. It would, of itself, lead only to aggregations. Family groupings might result from the operation of sex and parental instincts, the fear and dependency of infancy and childhood, and the sense of comfort and security resulting therefrom. Larger kinship groups might be built up also on this basis and the perceived advantages of coöperative effort. But study of any society shows that it comprises a number, sometimes a vast number, of associations of all sorts. These are all purposive in the sense that they satisfy some more or less clearly defined need, social, recreational, economic, political, religious, professional, intellectual, or other. Their membership is determined by what Professor Giddings¹⁸ has called the "consciousness of kind." This he says "is only another name for fellow feeling." It is based on a recognition of resemblance, physical, intellectual, or emotional. It is of varying degrees, depending on the number of

¹⁸ *Principles of Sociology*, The Macmillan Co., 3d ed., 1904, pp. xiv, 17-18.

individuals and the number of points of resemblance. It serves as a basis for social differentiation, for the segregation of individuals into all the above kinds of groups.

It would not of itself result in group formation, since it is a static intellectual state. It must be harnessed to the drive contained in the gregarious tendency. Cats, for example, recognize their kind, but may hiss, snarl, and avoid each other. In the true herd animal, a recognition of kind releases the impulse toward association. "Birds of a feather flock together," not merely because they are of one kind and know it, but because they have a tendency to flock.

One of the simplest operations of the consciousness of kind is seen in the formation of cliques, gangs, clubs, fraternities, sororities, lodges, and similar groups. In this manner, a multitude of crisscross lines are drawn through a population. Its operation is seen in the formation of religious sects and the minor groupings within them. It is seen in the formation of political parties and movements, local and national. While civil associations, towns, cities, and nations arise largely from genetic causes, the consciousness of kind plays an important part in their formation, their maintenance, and the loyalty which men feel toward them.

Egocentrism. There is an equal difference of opinion as to whether man has an ego instinct, or an innate tendency to safeguard the self. Every person is obviously interested in himself, his body, his appearance, his reputation. Loss of social esteem is painful; to be "cut dead" by persons of good repute is a source of humiliation and "sense of inferiority." Here, again, we have something universal, for there is abundant evidence that self-centeredness is almost equally important in all societies. In a large proportion of his activities, man is moved by calculation of personal advantages. There is a well-recognized antithesis in the psychic attitudes which predominate in religious, as contrasted with economic, activities. If, then, we explain the gregarious tendency as an outgrowth of the struggle for existence, how can we explain the equally obvious tendency toward individualism?

Curious as it may appear at first thought, this latter aspect of human nature is also rooted in the struggle for existence. It must be remembered that this struggle has at least a twofold aspect; first, that of a group with physical nature, animals and other human groups; and second, that among members of the same group.

Life in groups was an essential condition for man's conquest of nature. It is also an essential basis for that struggle of races which has stained with blood every page of human history. On the other hand, in his life within the group, the intensity of the emotions and sentiments growing out of the herd instinct tend to be displaced by the more personal motivations growing out of economic necessities. In other words, whereas men have always carried on their struggle with other groups under the stimulus of an intense group devotion, they carry on the activities of peace under the stimulus of self-interest. Each individual, or each familial group, is under the necessity of acquiring its own food, clothing, and shelter.

The Duality of Human Nature. It is this twofold aspect of the struggle for existence which has resulted in such a striking duality of human nature. Man is neither wholly self-centered, nor is he wholly social. We must look to the bees and the wasps for such a high development of the gregarious tendencies as leads the individual constantly to devote himself with singleness of purpose to the interests and welfare of the group as a whole. Man, on the other hand, alternates between periods of intense devotion to group welfare, under the stimulus either of patriotism or of religion, and nearly complete disregard, or even heartless exploitation, of the rights and interests of others in the economic struggle of peace times.

If this view of human nature is correct, then we find a fairly ready explanation of the variable behavior of the same individual under the differing stimuli of peace and war. We also find important elements in a sound social philosophy. We may be sure that the vast majority of men at all times and places have devoted themselves with a mystical and all-consuming devotion to the service of their group, *when the life of the group was at stake*. There is much ground for believing that man's fighting propensities are largely rooted in his gregariousness. They are certainly closely associated therewith, and are aroused to their highest intensity only under the irresistible forces of the gregarious appeal. On the other hand, in times of peace, men sacrifice their personal advantages most unwillingly, even for the larger interests of group welfare. In America to-day it would be easily possible to find a million men ready to sacrifice their lives for the preservation of the nation in war time. But, in peace, it is almost impossible

to find a worth-while individual ready to sacrifice a portion of his business or professional interests, in order to serve his community as mayor or as any other officer, if the remuneration is small. So well recognized is this difference that the war profiteer is hated and reviled as comparable only to the traitor, whereas peace-time profits are an almost certain guarantee of social esteem. The necessity of relying upon professional politicians for public services in peace time, due to the failure to secure the self-sacrificing devotion of leading citizens to the public welfare, is a standing joke in every democratic community. In war time, every individual is expected to sacrifice for the common good; in peace times, no one expects this, except the naïve and unsophisticated.

This ambivalent, or balancing, aspect of human traits reveals itself in other respects. It is shown in the reconciliation of aggressiveness with submissiveness; in the "spirit of independence" and the obedience to law and order. Man craves company, but he also wishes to be alone. Then there is the contrast between introversion and extroversion. The introvert focuses his attention largely on himself, is likely to be supersensitive to criticism, is given to introspection, is retiring in disposition, reflective and serious in temperament, and able to live with himself much of the time. The extrovert has the opposite characteristics. He shows great interest in things and persons, takes criticism lightly, assumes responsibility easily and with little worry, and hence with economy of effort, and is likely to prefer action and association. We are all of us both types in varying degrees under the varying stimuli of social life. And yet these differences affect vocational aptitudes and success; they also very deeply affect group organization and the development and social rôle of institutions.

Duality and Social Organization. We may thus conclude that, whereas a communistic or socialistic type of social organization and activity is inevitable in times of group conflict, a more individualistic and competitive type of social organization is a natural accompaniment of a long-continued period of peace. Sociologically speaking, no more interesting phenomenon occurred during the recent Great War than the rapid transformation of the industrial, political, moral, and religious life of the western nations from the conditions of democratic individualism to the conditions of social solidarity, within a few months after the outbreak

of the conflict. Even the American people, among whom the tradition of personal independence and the rights of private property are deeply ingrained, saw their industries taken over by the War Industries Board, limitations placed upon their consumption of power, foods, and other goods, and their amusements taxed and restricted. There was even an almost universal approval of obvious violations of the Constitution in the suppression of freedom of speech, press, and assemblage. Immediately upon the establishment of peace, however, centralized social control was reduced in every direction. Industries were transferred back to private management, freedom of manufacture and consumption of goods were restored, and there was a gradual emergence of the traditional rights of personal independence, freedom of speech, and of the press.

It would seem that such transformations must have occurred thousands of times in the history of man. They are as natural expressions of human nature and of human experience as the solidarity of the wolf pack during the attack, and the tendency to fight each other once the prey is brought to earth. We may conclude that mutual aid or direct coöperation, has an essential, but nevertheless a limited, rôle to play in social life. There is abundant evidence that the effort to carry over into peace times those socialistic and communistic measures, which are so natural in war, results in widespread corruption and in the development of large numbers of social parasites. Man is not a fully socialized creature that works for the hive his whole life through. Neither, on the other hand, is he an extreme individualist, constantly defying authority and convention. The human norm is somewhere between, with many individual variations.

Moreover, we may suggest that neither morals nor religion is realistic when it takes the form either of extreme altruism or of extreme selfishness. As Spencer ¹⁹ long ago pointed out, extreme altruism is neither possible nor desirable. A social organization in which each individual seeks to sacrifice himself in the service of his fellows is an impossibility. A thoroughly altruistic individual would not permit others to sacrifice themselves for him. We shall try to show in a later chapter that religious attitudes relate to loyalty to group life and welfare; they are an expression of human gregariousness in that they represent a suppression of

¹⁹ *The Study of Sociology*, D. Appleton and Co., 1873, Chap. vii.

individualism for the sake of group strength and solidarity. They constitute a "group sense of safety" allied to patriotism, and hence are most active when group interests are at stake. On the other hand, an extreme selfishness would at once destroy the solidarity and the efficiency of the whole social organization. We may see in this necessary balance between extremes the fundamental reason why certain aspects of Christian ethics, as they are currently promulgated, have never been realized in social practice. Man is so constituted that those individuals who sacrifice themselves for their fellows in peace times are not only very likely to be exploited, but not infrequently are looked upon as sentimental or weak-minded.

The Egocentric Desires. We left unanswered the question whether man has an ego-instinct, as is so strongly asserted by the psychoanalytic school. It is unnecessary to strive for a conclusive answer because, as with gregariousness, man *acts* as though he were strongly moved by egoistic interests. It is, moreover, impossible to say to what extent this is innate, and to what extent due to the conditions under which we are reared. Egocentrism is closely connected with the development of the sense of self, and hence may very well have its physical basis in the brain. In that case, it would, like sex, assert its full force only after maturity; but by that time it would have been deeply affected by years of social training and discipline. In any case, it is clear that the sense of self emerges slowly. The child first becomes aware of its own body; then of itself as distinct from other selves; and finally of itself in relation to parents, family, and community.

By maturity, the innate tendencies and the cultivated attitudes have become merged into desires, or wishes. Professor W. I. Thomas ²⁰ classifies these desires as follows. First, the desire for *new experience*. This expresses itself in the avoidance of monotony, the love of travel, the seeking of adventure in both life and story, and the universal interest in whatever is romantic. Hunting, gambling, exploration, scientific research, boyish pranks, a great deal of juvenile delinquency and criminality, newspaper sensationalism, flirtation and courtship, and the appeal of the theater, the movies, the novel and many new inventions, all find a part of their explanation in this desire. It implies courage, pursuit, attack, social change, and instability.

²⁰ *The Unadjusted Girl*, Little, Brown and Co., 1923, pp. 4 *et seq.*

There is, secondly, the desire for *security*. This is, in many respects, the opposite of the desire for new experience. It signifies fear of the new, and is thus expressed in social conservatism. Men everywhere have a strong feeling of security in the familiar; hence they hold on to their traditional beliefs and ways tenaciously. The desire for security finds its most powerful expressions in the acquisition of and worship of wealth, and in the violent attachment of the propertied classes to law and order. But this desire is something more than the desire for physical security. It includes also the desire for the security of the self as it is pictured, idealized, and cherished by one's self. It thus connects with the desire for social approbation, fear of publicity for one's delinquencies, but deep satisfaction in whatever enhances one's reputation, flattery of those in power over us, and a multitude of pretenses before the public of being what we are not.

The desire for *response* is a craving for the intimacy that leads to mutual understanding, friendship, and love. It is rooted in man's sexual and gregarious nature, and is the source of much of human altruism. It expresses itself in all forms of self-sacrifice and devotion in order to win affection and emotional attachment. It is a large factor in parental love, and in filial and conjugal affection; it is at the basis of true friendship. To feel that one is appreciated seems to be essential to psychic peace and personal efficiency. A good deal of individual maladjustment, mental conflict, and personal idiosyncrasy may be attributed to its lack. Girls, craving friendship, may sacrifice their virtue in order to win it, and boys join the gang for a like reason. In such cases, it is also strengthened by other desires. The desire for response is apparently also a factor in religious attitudes. The "unburdening of the soul" and communion with God, who hears in secret and understands fully, are due to the necessity of protecting the self from the collapse of personal morale in consequence of the starving of the desire for response. Intimate friendships thus serve an important psychic therapeutic value in enabling one to "get things off the chest," to relieve the feelings of inferiority due to social slights, personal lapses, fears of social retribution, and the lack of personal sympathy. The religious confessional and current psychoanalytic practice serve a similar purpose.²¹

²¹ Cf. E. D. Martin, *What Psychology Has to Teach You About Yourself*, People's Institute Pub. Co., 1924, Part X.

Finally, there is a desire for *recognition*. This manifests itself in ambition, self-assertion, rivalry, love of praise, vanity, and arrogance. Ordinary concrete forms of this desire are the desire of the girl for clothes and jewelry, the desire of the boy for a place on the team, the desire for success in business or profession. It interlocks with the other desires in many ways. In general, it is synonymous with what is more often called *the desire for social approbation*.

It is because man is a herd animal, predisposed and long conditioned to life with others, that one of the deepest desires of his nature is the approval of his fellows. Obviously, such a desire could not develop in a creature accustomed, like the carnivores, to live primarily in isolation. Wherever found, however, the individual man or woman is deeply moved and powerfully controlled by an ever-present desire to stand well in the esteem of associates. It is probable that the real nature of this desire is nothing other than the desire for self-esteem, for nothing so expands the *amour propre*, inflates the ego, or gives us such perfect satisfaction with ourselves, as a consciousness of social esteem. We are at peaceful satisfaction with ourselves, if and when we are able to move in the circles of the elect. The primary psychological process whereby this desire is cultivated is the continuous effort on the part of parents and teachers to make a child behave like others. From the very first the child is approved when he pleases his elders and reproached when he displeases them. He pleases them when he acts, speaks, or feels in the ways they do, or are accustomed to. In this way, the native predispositions and aptitudes become strongly infected with a desire to be like other people, for this wins approval and avoids injury. It increases security and comfort, and thus connects with the self-preservative tendencies.

This trait is of the utmost importance for the socialization of the individual. It is largely in consequence of it that children are readily taught those modes of behavior and acquire those emotional and sentimental attitudes which are looked upon as right and proper by the group to which they belong. The desire for social approval, therefore, is a basic psychological condition for the development of the moral personality. The "moral imbecile," so called, is an individual who is wholly lacking in this sensitivity to the feelings and attitudes of those about him. The ultra-moral individual, on the other hand, as commonly

viewed, is the individual who is so extremely sensitive to such attitudes that he never does anything, openly or secretly, which would not be approved by the best opinion of the group to which he belongs. Thus an excess of the desire to be like others destroys individuality and personal force.

We see also in this desire for social approbation an important element in the formation of voluntary groupings, such as social clubs and secret societies. Many such organizations are in part due to a feeling of caste or superiority which arises among those who possess some mark of distinction. Their mutual association is an aid to self-esteem, because it results in the special approbation of those whose qualities are believed to be marks of special merit. It is for this reason that man is everywhere and always a "joiner." Church going is to-day maintained in part by the sense of respectability which attaches to it. A body of church members finds one of its chief sources of gratification and one of its chief justifications, psychologically speaking, in their mutual approval, one of another, as over against other social groups. The same quality attaches to multitudes of other groupings from the great secret orders to college fraternities and "select" circles of bridge players. To be members of socially approved groups, to be popular, to be "in the know," elevates the ego by increasing the consciousness of social approval. On the other hand, no experience is more humiliating than to be rejected from approved social organizations, or to be omitted from lists of the socially elect.

Suggestion and Imitation. It has often been said that man is endowed with an instinct of imitation, together with a high degree of suggestibility, so that he tends to do as others do. In this way was explained the child's ready acquisition of his mother tongue, and other features of the culture about him, which he acquired apparently without any formal instruction. It now appears doubtful whether there is any truth at all in this view. Animals show very little imitative tendency. Children acquire their habits by the process of conditioning and combination of innate behavior units, and give no indication of purely imitative responses until the conditioning process, or experience, has built up in them numerous habits and coördinations. They *learn* to imitate.

Without going into detail, we may say that suggestion exists whenever a given stimulus sets off a response in an immediate,

largely unconscious way. To this end the response mechanisms must be already conditioned, or prepared, to respond to the stimulus. Life is full of illustrations. Our social training, for example, prepares us to approve the ideas of persons having social prestige, and we are very likely to accept and repeat their ideas in an uncritical manner. This is the basis of many kinds of authority, legal, official, religious, scientific, and even that of parents and teachers. Like other animals, man becomes highly suggestible in times of danger or excitement. This condition, which has very interesting physiological accompaniments, prepares him for quick and vigorous responses along lines of his previous conditionings. These responses vary greatly, of course, according to both the stimuli and the previous experience, as the following situations make plain: (1) a child who has been told stories of ghosts and hobgoblins finds himself alone in a strange place on a dark, windy night; (2) a person of deeply religious training attends one of Billy Sunday's revival meetings; (3) a person of rigorous scientific training and little or no religious conditioning attends the same meeting; (4) a nation at war is told that the enemy has committed horrible atrocities. Examples are limitless. Suggestion is at the basis of skillful advertising, as well as skillful moral instruction. It affects our relations with friends and strangers, and our behavior in work and play. It is an important aspect of child training, religious practice, politics, business, leadership in every line, gossip, and social intercourse.

Words and visual symbols are the most powerful instruments of suggestion in human behavior. Their subtle suggestions constitute a large part of our preparation for social life, while the overpowering sentiments of patriotism and religion are let loose by both of them. Man becomes by force of his cultural heritage both word-minded and visually-minded. In consequence, his deepest emotions, to say nothing of lesser ones, are stirred by shibboleth, the names of heroes, tribal totems, national flags and anthems, and similar symbols of his various allegiances.

It is in his high suggestibility that we find the roots of man's extreme credulity. The vast majority of men everywhere show a pronounced tendency to accept in a most unquestioning fashion the ideas, emotions, and sentiments which are traditional in their social groups. To be sure, most of this is due to the absorption of the social tradition in the impressionable years of childhood,

before the development of the powers of rational thought and critical intelligence. This tendency to accept tradition as the embodiment of authoritative and final truth finds expression in scientific as well as religious circles, among college graduates as well as among the relatively uneducated masses, though (we like to believe) to a less degree.

It is in the combined effect of his suggestibility and his gregariousness that we see also the fundamental explanation of man's conservatism. His social nature makes him extremely sensitive to the pressures to conform, at the same time that it gives rise to these pressures. On the other hand, suggestion and imitation are essential and important factors in social progress. While the new very often tends to be resisted, once it has secured the right social approval, that is, of persons having a greater or less degree of social ascendancy, it will be eagerly sought after and adopted by the mass of the population. This is illustrated by the use of distinguished names in advertising and recommending books, automobiles, cigarettes, or other goods. It is shown in fads, fashions, customs, and morals. Moreover, our own social tradition, by its emphasis on progress and its devotion to science and mechanical improvements, tends to condition popular attitudes toward the acceptance of the new in science and invention. Avowed radicals and "professional liberals" manifest a credulity and suggestibility equal to that of the social conservative. Their "will to believe," due largely to the desire to win response and recognition from other radicals, leads them to accept uncritically whatever harmonizes with the radical creed or viewpoint.

It is in these same tendencies to suggestibility, also, that we find the roots of group fear, and it is group fear which lends such irresistible force to propaganda in war time and in all periods of social excitement. It is on group fear also that is based the persecution—religious, political, or other—which constitutes one of the most damnable features of human history.

Suggestion results in imitation when the stimulus leads to a like response. Thus we may smile when another does, or shout, sing, laugh, or run. Imitation requires that, (1) the imitator perceive the act to be imitated, through sight or hearing, (2) have the ability to perform the act, or at least to make an effort to do so, and (3) have an incentive, that is, a desire or other propulsion, to exert himself. Thus the child acquires a language

because his neuro-muscular units contain the essentials of vocalization; he hears the sounds of his mother's voice and perceives its shades and intonations; the random activities of his neuro-muscular speech mechanisms, being human, hit upon the sounds of simple words. Once the first words become attached to their proper objects, the process is greatly facilitated. The child soon *learns* to imitate sounds, because he perceives they have significance in getting what he wants. Various desires furnish the necessary stimuli to further effort at language acquisition.

The tendency to imitate very soon becomes a more or less conscious habit. It links up with the growing desire to be like others, and thus acquires a powerful drive of its own. Imitation thus becomes active rather than passive; the attainment of approved social standards and the acquisition of whatever wins recognition become sources of deep egoistic satisfaction. Thus, the child acquires skills of various kinds, for both work and play. He patterns himself after the models about him and becomes a replica of their thoughts, feelings, sentiments, and actions. He seeks especially to emulate the examples of persons of prestige in his environment. Teaching by example, both through conscious and unconscious imitation, is perhaps the most effective stimulus to action, emotion, and thought. With the maturing of standards of taste and judgment, the individual exercises a more critical selection of his models. Increasing knowledge of the life of man at other times and places, and increasing facility in dealing with abstract concepts in philosophy, ethics, economics, and politics, serve constantly to recondition the habits of action, feeling, and thought acquired from the primary social groups. Some men, perhaps, learn to guide their lives by abstract principle and precept. For most men, however, superior personalities, real or ideal, remain the inspiring models.²²

Self-Assertion. Whether self-assertion be an instinct itself, or a specially conditioned form of the general tendency to activity or habit based on some inherent tendency to struggle against restraints,²³ it is a universal and extremely important aspect of human behavior. Woodworth²⁴ finds that man displays two self-assertive reactions toward things, namely, "overcoming

²² For an excellent discussion of "Suggestion and Imitation" see L. L. Bernard, *An Introduction to Social Psychology*, Chaps. xix-xxv.

²³ Floyd Allport, *Social Psychology*, Houghton Mifflin Co., 1924, p. 58.

²⁴ *Psychology*, Henry Holt and Co., 1921, pp. 161 *et seq.*

obstacles or putting through what has been undertaken—the success motive,” and “seeking for power.” Likewise, there are two assertive reactions toward persons, namely, “resisting domination by them—the independence motive,” and “seeking to dominate.” Even a baby resists force, a child asserts its own “will,” and youth everywhere show resentment and opposition to authority. A small child is capable of effort to overcome the opposition of things and persons; very early some children display great determination to succeed in what they begin.

These instinctive propensities play an enormous rôle in social life and organization. It is partly in consequence of them, and partly in consequence of his higher intelligence, that man has conquered the globe. Nor is he content with his present mastery of natural powers; he is bent on further conquests. Examples of self-assertion largely for its own sake are found in the climbing of high mountains and the search for the north and south poles. It is this same characteristic, plus habit, that leads men to continue in business and profession long after a competence has been won. Most sports derive their zest from the opportunities which they afford for aggressive action against things (hunting, fishing, yachting), or against persons (football, baseball, prize-fighting, and other games of competition).

Most powerful of all is the drive toward self-assertion against other persons. Both sport and business thrive on competition. Self-assertion leads to rivalry and emulation, which reënforce the will to succeed. Where there is a combination of the gregarious and assertive predispositions, as in team-play, the corporation, or the nation, human energy, physical and mental, is stimulated to its utmost. The individual resistance to authority, or “spirit of independence,” leads to organized resistance to authority, the overturn of governments, civil war, and revolution.

Leadership is an important aspect of self-assertion. Men obviously differ greatly in self-confidence and self-esteem, in energy, courage, and intelligence. In any group, on the playground, in boy gangs, in club or society, in business, or in the spontaneous groupings due to fire or accident, the natural leaders soon assert themselves. All coöperative effort among men, whether temporary or enduring, is carried out under the dominance of leaders. Leaders are essentially men of action and therefore stand out most prominently in those activities requiring the exercise of decision,

force of character, and the assumption of responsibility, as in war, politics, and business. In science, art, and literature, men of action are surpassed by men of creative genius. The leader owes his power to his personal prestige in the minds of his followers. To this end, an attitude of submissiveness and feeling of inferiority and dependency must be created in the minds of followers. This is accomplished by repeated suggestion of the leader's intrepidity, by his confident bearing, rapid and decisive action, and by a certain mystery with which he is able to surround himself. The leader thus exerts a certain hypnotic influence; but once the spell is effectively broken the collapse of his power may be precipitous. The personal ascendancy whereby the leader dominates the wills of others is greatly strengthened by the prestige which current tradition attaches to his high office, and by badges, uniforms, and other insignia of rank. It is one of the virtues of democracy that many of the artificial trappings whereby an hereditary nobility awed the masses are done away with.

The so-called *fighting instinct* is doubtless grounded, in part, in man's self-assertive propensity, often strengthened by the blocking of desires for material goods or egoistic satisfactions. Like assertion, this has two important aspects, individual and collective. As a rule, the individual tendency limits itself to the milder forms of rivalry, but even in business or other competition the emotional accompaniments may rise to the level of anger and animosity, and lead to efforts toward destruction of the rival. We make an effort by law to compel business practices to conform to the standards of fair competition, but do not always succeed. So prone is man to combat that he commonly speaks of any contest as a fight. In addition to the rivalries and conflicts of business and politics, are the numerous personal encounters, sometimes of a criminal nature, in which one person assaults another with fists or weapons.

Collective fighting, or war, is, however, the most thrilling of all human activities. When in close association, men develop a deep consciousness of kind, which is variously called tribal instinct or patriotism. Even a timid man becomes brave and aggressive when one of a like-minded group. The most convincing of all arguments for the existence of a gregarious instinct in man is the readiness with which he flies to the defense of his group, places himself at the disposition of leaders, and sacrifices his life

for the defense of the group life and possessions. There are probably many psychic factors involved here, but it is worth noting that very similar actions are attributed to a herd of baboons and are clearly manifested by chimpanzees.²⁵ In any case, the fighting predispositions in man's make-up are deep-seated and powerful. They can be sublimated to some extent, and diverted to more useful purposes; they can be largely overcome by education and social conditioning. But it does not seem probable that war will cease entirely to be a phenomenon of world affairs at any time in the visible future.

Submissiveness. Correlated with the phenomena of leadership, are those of submissiveness both to individual and to crowd domination. Obviously, undiluted self-assertion would lead to a war of each against all; it would make impossible any kind of co-operation under leadership and would thus make society impossible. Stubborn resistance in the face of overwhelming odds may appeal to us as heroic, but it may also lead to unnecessary effort or even self-destruction. Most people find genuine satisfaction in submitting to leadership and take a personal pride in the achievements of their leader. Crowd domination is even more irresistible for the average man. It is a common observation that it takes a high grade of moral courage to fight against it. This submissiveness is easily developed in a herd animal. We saw above that there seems to be a close connection between man's gregariousness and what Galton called his "slavishness." Certain it is that there is a profoundly significant balance between human self-assertiveness and submissiveness. These ambivalent traits give man a certain capacity for personal independence and initiative on the one hand, but on the other, a certain readiness to follow and be dominated by his leaders and his group. May it not be that this balance was long ago struck by the twofold nature of the immemorial struggle for existence mentioned above?

This inherent tendency to acknowledge superiority, to be obedient and loyal to personages endowed with social prestige, is not only an essential basis of every kind of group organization, but is an important factor in the determination of group standards and ideals. It enables the leaders to set standards of behavior, of right and wrong, and other forms of social valuation, which are readily disseminated throughout the group. This is particularly

²⁵ Köhler, *op. cit.*

true in a society organized for military efficiency, because in such a society every social force or institution which will accentuate the ascendancy of leaders and the subordination of followers is utilized. The same phenomena, however, are abundantly illustrated in a democratic individualistic society such as our own. In such a society, moreover, the power of leaders and all the symbols of prestige gain enormously in times of group danger, through the increased suggestibility resulting therefrom. In times of peace, security, and prosperity, the inherent individualism and centrifugal egoism of human nature assert themselves with considerable freedom. There is, therefore, at such times an increasing tendency to flout the prestige of leaders, to obey individual impulses, to assert personal freedom and independence, and to develop otherwise many of the characteristic phenomena of a democratic community. In times of war or other common peril, however, the forces of social cohesion rise to an irresistible level, and individuals are welded into a solid mass with an extraordinary tendency to believe what they are told and to do what they are ordered.

As regards political organization, an important feature of this subject is the relationship of leadership to democracy. In this country the social tradition is largely based upon theories of human equality. The political philosophy of the Revolutionary Fathers asserted with great vigor and deep emotion that all men are created equal. They derided the prestige of kings and nobles and all the insignia, paraphernalia, and symbolism of outworn feudalism. Nevertheless, history shows that a democratic community is subject to the absolute necessity of skillful leadership; and leadership implies that men are not equal either in power to dominate their fellow men, or in those capacities essential for the determination of the policies of state. Moreover, while the theories of the late eighteenth century attributed to the average man a high rationality in the determination of his conduct, modern psychology shows him to be governed by his emotions and sentiments to an almost unbelievable degree. The result is that we discover that the art of leadership in a democracy is not the appeal of intelligence to intelligence; it is not the promotion of clear rationalistic thought by the attrition of argumentative mind upon mind; but rather it is the skillful appeal by clever orators and writers to the deep-seated emotions and sentiments of the com-

munity. Democratic leadership becomes a test of skill in the use of the psychology of suggestion. Most such leaders have a ready and sympathetic understanding of human nature. At the same time, the recent progress in social psychology as an academic study has contributed not a little to the art of propaganda and crowd control, not merely in political campaigns, but in the more prosaic activities of business promotion, and even the evanescent activities of a charity ball.²⁶

While this view may substantially alter our ideas regarding the essential nature of democratic government, it throws into strong relief the necessity of cultivating in the community habits of deliberative thought. Moreover, it shows that the character of democratic government, as indeed the character of the democratic community throughout, is determined fundamentally by the quality of its leaders. Democracy is a rule of the mob only when it is in the hands of demagogues, or of narrow-minded but deeply emotional, self-seeking leaders. Moreover, the democratic form of political organization has the inestimable advantage of setting up a rivalry for leadership, thus giving the community a certain selective prerogative. It also makes it possible for the community more or less periodically to reconsider its leaders, and to turn out those that have proven false to the public interest. We may say, then, that even though suffrage be more or less of an illusion so far as the individual citizen is concerned, it contains within its possibilities the power of a more or less flexible adjustment of leadership to the dominant interests of the group.

There is thus a reciprocal relation between the democratic community and its leaders. The latter can never appear to differ widely from the mass in thought and sentiment, otherwise they lose power and prestige. Their function is rather to give form and clarity to popular desires, and to become the embodiment of popular ideals and purposes. The public reacts powerfully to strong personalities who know how to appeal to them, whereas it reacts with slowness or indifference to cold logic and colorless facts. Here are the reasons why democracy is always in danger of becoming a rule of the mob, and why it is rarely that the leaders of democratic governments are among the ablest minds of the community.

²⁶ For an illuminating discussion of the psychology of popular government, see Graham Wallas, *Human Nature in Politics*, Constable and Co., 3d ed., 1916; see also his *The Great Society; a Psychological Analysis*, The Macmillan Co., 1914; and Walter Lippmann, *The Phantom Public*, Harcourt, Brace and Co., 1925.

INTERACTION OF INDIVIDUAL AND GROUP

Human Nature as a Social Product. Aristotle is often quoted as saying that "Man is a political animal." By this he meant that the human personality reaches its highest development only in a good society. This brings out a crucially important point for the understanding of human nature, namely, that its native environment is the social group. One might as well try to think of fish without water in which to grow, as of human beings without a social medium in which to unfold their potentialities. Mental evolution for most individuals is little more than the acquisition of habits in terms of the social customs about them. Such habits are acquired primarily through what Professor C. H. Cooley²⁷ has called the "primary" social groups,—family and neighborhood. So powerful are these influences that we can often tell in advance how individuals will react to given situations, if we know their social background. In fact, the Austrian sociologist, Gumpłowicz, went so far as to deny the existence of individual mind altogether, on the ground that individual behavior is nothing other than participation in the current habits of his social group. This is an exaggeration, but it gives point to the fact that we are what we are very largely because we have been reared as we have been.

Reciprocal Action of Tradition and Human Nature. We thus approach once more the curious contradiction that human nature seems in essence to be ever the same, and yet the habits of life undergo continual change. It is often said that, "You can't change human nature," and that, "Civilization is only a veneer." Nevertheless, we may not in our day-to-day activities repeat any of the precise doings of our grandparents. This apparent dilemma is explained by the fact that all the varied traditions, customs, beliefs, and all else that constitutes that social environment in which the youthful generation is reared are expressions of the potentialities of original human nature itself. Man himself preceded them all; he alone has achieved anything like them; they are all permeated with the qualities of his hereditary predispositions and aptitudes. Moreover, he constantly seeks to improve them so as to give a larger satisfaction to his native tendencies and the habits

²⁷ *Social Organization. A Study of the Larger Mind*, Charles Scribner's Sons, 1911, especially Chapter iii.

built thereon. No doubt, man will be forever insatiable; his wants, largely socially induced, seem to be indefinitely expansible. He will not be able to construct a society in which all the members will have all the goods, all the power, and all the freedom they wish. But even if he could, ennui and the desire for novelty and activity would lead him to destroy it partly for the sake of building it up again.

There is thus a constant reciprocal action between human nature and its social medium. The earliest men could make only the simplest beginnings of social achievement. But that was enough to start human history. Every minute advance became a new element in the human environment and tended to call out new potentialities. For each generation, the social tradition standardizes thought and action, but it usually leaves some scope for individuality. It is from the latter that new ideas, inventions, and manners arise and compete with the old for acceptance. Slowly the long incline from savagery to civilization was thus climbed. Man could not scale such heights at once. But children seldom think exactly the thoughts of their parents. The youth of to-day, reared in an age of science, urbanism, and skepticism, are not repeating the same ideas, cherishing the same social values, or making the same inventions as their parents, who were reared in an age of village life, traditional lore, and religious faith. But, could the generations have been reversed, the results would have been the same.

Pluralistic Behavior. It follows from this dominance of tradition and habit that many of the members of a given society think, feel, and act alike on many occasions. They manifest what Professor Giddings has called "like response to the same stimulus."²⁸ Similarity of response is shown in every kind of mob action, but it is equally manifest in the most orderly decisions of deliberative bodies. Like response may be simultaneous, as with every kind of group drill, ritualistic performances, the countless movements of people in our machine age to school, shop, factory, or office at definite hours, applause at the theater or opera, and so on. It may also be non-simultaneous, as in the different rates at which the people of New York and of Illinois were ready to enter the World War in 1917.

²⁸ *Inductive Sociology*, The Macmillan Co., 1901, Part II, Chaps. i and iv; see also *Studies in the Theory of Human Society*, The Macmillan Co., 1922, Chap. xiv, "Pluralistic Behavior."

Standardized Like Responses. Like responses tend to be repeated under like circumstances and thus give rise to social habits or customs. In their most evanescent form these standardized responses take the form of fads and fashions. These arise spontaneously out of the trial and error activities of men and women and "catch on" because of the social stimuli affecting many people in similar ways. Persons who become aware of like behavior, like attitudes, or like interests, develop a "consciousness of kind," and are very likely, as shown above, to organize themselves into groups, and to standardize their agreements. If, after discussion and criticism, like responses are approved as answering an enduring need, they become customs or folkways, imbued with a deep sense of rightness and propriety. It is out of such processes that arise beliefs, rituals, morals, laws, and other institutions.

The So-Called Group Mind. To explain pluralistic behavior, various writers have implied that there is in a social group a kind of mental force that is over and above the individual minds and separable from them. Such expressions as "mind of the mob," "folk soul," "spirit of the times," and "the force of democracy" are often used in such ways as to imply their objective existence, entirely apart from individuals. All such expressions are, however, merely abbreviated ways of stating attitudes common to many members of a group. All the actual mind there is, is in persons. In so far as they think and feel alike, and respond in similar ways to the same stimuli, they manifest group mind. There is thus a Catholic mind and a Methodist mind, a French mind and a German mind, in the sense that numbers of persons share similar traditions and thus have similar habits of thought, feeling, and action. We may illustrate by the action of a mob, or the response of individuals to a Billy Sunday revival meeting. In all such cases, there are three separable aspects of the individual behavior. In the first place, there must be a number of persons ready to respond to like appeals. Secondly, the critical powers must be held in abeyance. This is accomplished by appealing to common sentiments about which tradition has built powerful emotional impulses. In the third place, largely because of his gregarious nature, the sight of others doing what one is also prompted to do supplements the antecedent stimuli by the addition of the promptings to do and be like others. An individual

in a crowd is, therefore, ordinarily more suggestible than when alone, because he is subject to powerful stimuli which do not affect him when he is in seclusion.

Social Control. *A. Meaning and Basis.* By social control is meant all those processes and instrumentalities whereby the conduct of the individual is brought into conformity with social standards. It is at bottom a method of producing like responses in many individuals. This is accomplished fundamentally and for the most part by the process of conditioning the individual to respond in approved ways. From infancy he is subject to reproof and praise in the family, on the playground, and in school, while his psychic attitudes are shaped by story, myth, legend, ritual, belief, folkways, and mores. He grows up with an increasing desire to be like others and to be well thought of, and with an expanding comprehension of what is expected of him. The result is that the average individual lives much of the time wholly unaware of social control, that is, he is not conscious of any social restraint. Even when he feels his personal desires thwarted by social convention and law, he needs no overt, or positive, control by police powers.

B. Functions. Forceful social control is, however, made necessary by those variant individuals whose conduct becomes destructive of the rights and interests of others. Incompletely socialized and anti-social individuals exist in all societies, even among primitive peoples. For their restraint and punishment some kind of organized public authority and force is required. Control is, however, concerned more with the establishment and cultivation of coöperation, mutual restraint, respect for the rights of others, and good will. It becomes more and more important with increase in the size of the social group, and in the complexity of social relations. Its development must keep pace therewith or social organization gives way to anarchy. Civil wars and revolutions, riots and lynchings, criminality and delinquency, are always due to some weakness in the agencies of social control. These weaknesses may result in part from ignorance of how to meet, or forestall, destructive activities, and in part from a lack of proper adjustment of institutions and social classes to each other.

C. Means. The agencies of social control are numerous. They range from such unorganized agencies as fashions, fads, and

crazes, through custom and convention, to the institutionalized controls of education, religion, and government. They all, however, represent the crystallization of the opinions and experiences of the group. "Public Opinion is the primitive nucleus out of which the various agencies of social control have developed."²⁹ Law (including governmental institutions) is the most positive agency of social control. Closely allied is every form of authority carrying with it the power to inflict personal injury. Here is included the power of the elders in a tribe, of parents and others in authority over children, of religious authorities in many societies, of superiors in army, shop, and factory, and of similar persons. Law, religious beliefs and mandates, and moral codes represent the more or less deliberate opinion of that portion of a social group which is able to express itself. Their function is vastly more than mere restraint of aberrant individuals. They represent social norms which the group believes essential for general efficiency and well-being. They serve the purpose of controlling individual behavior in the interest of internal peace and coöperation, and to organize individual relations on the basis of mutual rights, general welfare, social cohesion, and group strength.

For the most part, control is exerted by agencies which shape the will, or the feeling attitudes. This is particularly true of religious beliefs and practices, taboos, morals, custom, and convention. If we apply to their inculcation the term education, then this is the most far-reaching agency in social control. It is these that render the individual suggestible to certain stimuli. He may, in consequence, be easily moved by the opinions of those he has been taught to respect, by propaganda of many sorts, advertising slogans, praise, blame, rewards, threats, satire, laughter, and other devices.³⁰ We may observe all these methods of influencing individual behavior in the activities of a political campaign, in the control of a particular nationality group in this country, or indeed in the ordinary events of the day.

D. *Illustrations.* We cannot study these agencies in detail, but it seems worth while to call attention to two of them of quite diverse type. There is control by personal and class ascendancy.

²⁹ E. A. Ross, *Principles of Sociology*, The Century Co., 1920, p. 429.

³⁰ For detailed study of all these and others, see F. E. Lumley, *Means of Social Control*, The Century Co., 1925.

Individuals learn to show deference to those above them in the social hierarchy and to exert influence over those below them. Class control is a universal social phenomenon and is always based on some mark of distinction. Hence the authority of elders, priests, military castes, the nobility, and the wealthy. Morals are essentially class standards of control, as one will see if he enumerates the virtues and the vices of warrior-nobles in contrast with peasant-workers and business-professional groups. Industry, obedience, humility, reverence, abstinence, are not the virtues of the master class. There is a similar contrast between the masculine and the feminine virtues in most societies.

A quite different type of control is that through gossip. This is both universal and one of the most powerful agencies. We all dislike to be "talked about," because we cherish social approbation and fear disapprobation. Gossip is, as a rule, a sufficient instrument of control in small local groups, where the behavior, and even the attitudes, of each is known to all. It is of little importance in the large city, where the sense of community is lost. This is one of the primary reasons why urban centers must have large numbers of police, in spite of whom they become the chief centers of crime, delinquency, vice, corruption, and other forms of anti-social behavior in civilized societies.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. What different conceptions of instinct can you find in psychological literature?
2. What are the distinctions between instinct and intelligence? Does one shade into the other, or are they at opposite poles of behavior?
3. In what ways does human gregariousness differ from that of the wolf, or of the sheep?
4. If man has no predisposition toward gregariousness, how could we explain, (a) his sensitiveness to opinion, and (b) his willingness to die in defense of his group?
5. Does man have a religious instinct?
6. Is fashion due to an effort to escape from convention?
7. How does the psychology of an individual in a crowd differ from his psychology when alone?
8. Is the sex instinct an adequate explanation for the existence of the family?
9. Is democracy a rule of the mob?
10. Is youth more, or less, conventional than middle age?
11. Discuss the psychology of the Americanization of immigrants.
12. What are the qualities essential to democratic leadership?

13. What is the real meaning of such expressions as "collective soul," and "mind of the nation"?

14. How does invention illustrate the interaction of culture and the original elements of human nature?

SUGGESTED READINGS

ALLPORT: *Social Psychology*, Chap. 15, pp. 382-430.

BERNARD: *An Introduction to Social Psychology*, Chap. 9, pp. 123-141.

CASE: *Outlines of Introductory Sociology*, Chaps. 27-29, pp. 550-607.

DAVIS-BARNES: *Readings in Sociology*, Bk. II, Part III, Chaps. 6 and 7, pp. 575-603.

EDMAN: *Human Traits and Their Social Significance*, Chaps. 4 and 5, pp. 67-107.

GAULT: *Social Psychology*, Chap. 7, pp. 155-178.

WOODWORTH: *Psychology. A Study of Mental Life*, Chap. 2, pp. 21-44.

YOUNG: *Source Book for Social Psychology*, Chaps. 4, 5-B, 10, 11, 16, 20-A, 25, and 27, pp. 56-77, 95-118, 219-267, 419-460, 543-559, 722-755, and 785-828.

ADDITIONAL SELECTED REFERENCES

BERNARD: *An Introduction to Social Psychology*, Chaps. 19-25, pp. 282-407.

LENNES: *Whither Democracy?*, Chap. 3, pp. 60-109.

SOROKIN: *Social Mobility*, Chap. 6, pp. 99-130.

TERMAN: *Genetic Studies of Genius*, Vol. I, Chap. 4, pp. 55-83.

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CHAPTER IX

THE CULTURAL FACTOR IN SOCIAL LIFE

INTRODUCTION

The Individual and His Cultural Environment. It may seem very strange to the elementary student of social life to make culture a factor in the further evolution of culture. This will, however, seem less strange if we recall what was said in the previous chapter regarding the importance of the psycho-social environment in the formation of habits of thought and emotion in the individual. It was there shown that the cultural medium furnishes not merely the general patterns of thought and behavior, but also the dominating viewpoints from which to attack the ever-present problems of individual and social existence. What men are thinking about, what they are strongly reacting to, the problems in which they are most interested, the difficulties which they are most concerned to overcome, the terms in which these are conceived, and the means and modes of attacking them, all grow out of the cultural situation in which they find themselves. This is, indeed, the most striking difference between man viewed as a mere animal and man viewed as a social being. In the former sense he reacts directly upon his physical environment in the satisfaction of bodily needs. In the latter sense, however, he learns not merely to control and regulate the satisfaction of his physical needs in conformity with the standards of the social life about him, but from this same cultural medium he derives interests, tastes, and activities, which constitute regulatory factors in his day-to-day motivations.

We may see this clearly by contrasting the life career of a normal, able-bodied Iroquois of 1700 in central New York with that of a normal, able-bodied American citizen in that same area to-day. In this case the geographical factors are the same, except as they have been modified by man. We may even assume that the Iroquois Indian and the American citizen are of equal and similar mental constitution. We may also disregard most of the language differences between them. From youth onwards they are sub-

jected to quite different stimuli and gradually develop quite different standards of valuation and patterns of behavior. Each, whether boy or girl, habituates himself to his own cultural environment, not merely as regards food, clothing and shelter, play, and material equipment of bows and arrows, or automobiles; but also as regards the less obvious but equally potent social tradition relating to rights and duties, standards of morality, prestige and prerogatives of parents and persons of authority, ceremonial customs of polite intercourse, magical and religious persons and practices.

If we followed two such individuals of the same sex and age through the daily rounds of activity, we should see them doing quite different things. The Indian boy would be learning, less by formal instruction than by observation and imitation, how to fish and hunt, how to make the necessary tools of wood, bone, stone, and copper, and the arts of woodcraft. He would have no books to read and no schools to attend, but would be absorbing haphazardly and in day-to-day contacts the language and lore of his tribe as to how to conduct himself in his relationships with parents, Indian maidens, chiefs, and imaginary spirits. All this would be communicated by the spoken word, by observation and imitation, and by initiation into and participation in tribal practices and mysteries. At an early age he would marry and take on all the civic and economic responsibilities of a full-fledged tribesman; he would become an expert with the bow and arrow, the canoe, and the tomahawk; engage in military exploits; be initiated into the secret societies. In general, his life would be very much like that of all other men in his tribe in day-to-day routine.

The American boy, brought up in an urban environment, would be spending a large part of his time for ten months in the year in the public schools, and possibly parts of every seventh day in a Sunday School. His formal education would embrace not merely a wide range of historical, geographical, literary, and scientific facts, but also moral and religious ideas, and even play, music, dancing, and the formulas of polite society. His knowledge of himself and of the world would be broader, deeper, and more varied than that of the young Iroquois, and designed to cultivate a wider range of abilities in order to enable him to adjust himself to a more complex world of relationships. His training for eco-

conomic activity would also be formal and more or less specialized and might continue into full maturity. His life would be free from any serious responsibility until long after the Indian boy had married, become a father, and shouldered his full share of economic and civic responsibilities. Meanwhile, he would have been deeply interested in baseball, football, bicycling, the movies, the radio, automobiles, airplanes, electrical developments, scientific discovery and invention, and a thousand other things in all parts of the world that never once entered even the imagination of his Indian prototype. He might learn how to use tools, but without knowing how to make them. He might become a factory foreman, a business man, a lawyer, or a preacher. Whereas the realms of the sacred and the mysterious would loom relatively large in the total mental life of the Indian lad, they would be relatively small in that of his American successor. Associated therewith would be a very powerful emotional attitude in the young Indian that many ways of doing things must not be questioned or must be done in the old, old customary ways. The young American, though having also a powerful attachment to his own customs and morals, would have in his tradition also the idea of progress, of constant change and improvement. He would absorb from his environment, as regards some aspects of his culture, the ideals of experiment and investigation. One of these boys would grow up in a culture in which the exploits of the hunter and the warrior were esteemed above all others; the other in a culture setting high value upon formal education, mechanical invention and scientific discovery, but setting supreme value on the production of goods and the acquisition of wealth. Thus one of these youngsters would grow up to be an individual looked upon as a savage by the other, who would consider himself a cultured Christian gentleman.

It thus appears that the kind of individual developed out of a given mass of living psycho-physical substance is due very largely to the environing cultural medium in which it evolves. In one set of conditions it becomes a savage, so-called, in another, a civilized man, also so-called.

But it would also be an easy matter to show that, underneath these sharp surface contrasts, there is an underlying similarity in the lives of these men. They would both find their chief interests, the dominating motifs of their lives, in material welfare and the

opposite sex. In their day-to-day activities they would be very largely controlled by the necessities of providing food, clothing, and shelter for themselves and those dependent upon them. The stage of cultural advancement would, however, set them to working with different equipment. Their interest in the feminine sex would lead to courtship, marriage, and family life and responsibilities, but there would be marked differences in the social habits involved. They would both acquire their mother tongues in much the same way, and also the folklore, magical practices, theological ideas, moral and religious attitudes of their groups. In all these social customs there would be a central core of similarity with outward dissimilarity. They would both be interested in the acquisition of property in certain forms, and in the winning and maintenance of social esteem. They would both believe strongly in loyalty to their tribe or nation, in law and order, in the punishment of misdemeanants, and the shooting of traitors. In the behavior of either of them the scientist could study the psychology of leadership, or of crowds. In all these and many other ways we could discover something about men in our own day and culture by knowing intimately the life of the Iroquois Indians two hundred years ago.

CULTURE AS THE HUMAN FORM OF ADAPTATION

Man versus Animal in Adaptation to Environment. In a previous chapter we have seen that one of the most marvelous things in nature is the adaptation of every form of plant and animal to certain elements of their environments. This adaptation, being absolutely essential for individual existence and species perpetuation, is brought about, as we have seen, by the combined action of variation, the struggle for existence, natural selection, and heredity. In the plant world adaptation takes the form almost exclusively of structural modifications which enable the plant to survive under special conditions of its habitat. In the animal world it takes the form of both structural modifications and the development of inherited patterns of behavior. In man, however, the neurological structures are much more complicated, much less stereotyped and, therefore, capable of developing a highly varied set of reaction patterns. He is also endowed with intelligence, or high powers of associative memory and reflection, which lead him much more extensively than any other animal to modify

his behavior in the light of experience. Finally, man has a gregarious tendency, a desire to communicate, and a capacity for speech, and hence a universal tendency to transmit from person to person some of the benefits of experience, and above all to communicate to succeeding generations the cumulative effects of the experiences of past generations. Since no other animal thus transmits to succeeding generations the benefits or acquisitions of past experience, culture is a uniquely human achievement.

The term "culture" here has a somewhat special use. We sometimes say that one person has acquired culture, while another lacks culture. We speak of the cultured Parisian and the uncultured farmer. The fact is that the farmer has culture, in the sense of acquired, or socially inherited, modes of thought and action. One of the most famous English anthropologists of the last generation, E. B. Tylor, defined culture in its widest ethnographic sense as "that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society."¹ This definition is not complete unless we recognize that the material features of a culture are a product of the knowledge and the capabilities of the population. The farmer has culture; he has much more of it of certain kinds than the Parisian. As thus conceived, culture is often identified with "civilization," though these terms may also be distinguished. That is, civilization may be, and is sometimes, defined technically as the culture of a society in which individual membership is based primarily on common territory, rather than on kinship. Thus the cultures of all nations, ancient and modern, are civilizations, while those of tribes are not. This technical distinction is not important for our purposes, since the term "culture" is inclusive. It is also synonymous with "social heritage,"² because it represents all ways of living inherited from past generations, plus all the achievements of this generation which will be inherited by the next.

Culture constitutes for the human group a set of habitual modes of response, or patterns of behavior, based on the experience of past generations, more or less well adapted to environing conditions, and transmitted as social tradition to the oncoming generation. The different aspects of culture—economic, political,

¹ *Primitive Culture*, 1871, Vol. I, p. 1.

² Graham Wallas, *Our Social Heritage*, Yale Univ. Press, 1921

moral, religious, ceremonial—all represent modes of adapting human behavior to important aspects of man's environment, both physical and social. They are the modes of satisfying human wants, or of solving the recurrent problems of life, individual and social, which have been tried out in the past and approved. In its totality, it is his cultural acquisition that primarily distinguishes man from the animals. In its absence, man must have remained on a distinctly animal plane; and yet, being man, endowed with his superior mentality and his sociality, it was inevitable that he should construct a tradition of thought and custom, and hand it on to his children. It is for this reason that man is often spoken of as a domesticated animal; the only animal that has domesticated itself.

Moreover, it is worth while to note that man stands in special need of a cultural acquisition. He is not endowed by nature with any conspicuous structural adaptations to particular elements of his environment. He has neither thick skin, a hairy coat, horns, hoofs, protective armament, poisonous fangs, or other conspicuous means of offense and defense. Nor does he have written into his neurological structure patterns of behavior peculiarly adapted to a special mode of existence. In this respect he is grossly inferior to the bees or the ants. In a loose use of the term we may say that these insects have a sort of pseudo-culture, that is, they have highly elaborated modes of behavior, with division of labor and more or less intricate social organization, and carry on an altogether marvelous communal life. All of this, however, is to be explained on the basis of rather stereotyped instinctive responses. It would thus be possible for a single queen bee to produce a colony of bees, which, without any parental instruction whatever, would carry on in perfect fashion the whole complicated round of life of a bee community. A human pair, however, if they could conceivably reach maturity without any instruction from their ancestors, would begin their struggle for existence as more or less helpless, empty-handed, creatures on the very lowest scale of human savagery. Culture thus represents a more or less extensive buffer between each oncoming generation and the naked, empty-handed, shelterless struggle of the original Adam and Eve with the mysterious forces of nature.

It is possible to conceive a society composed of creatures in all outward respects like man but endowed with a highly elaborated

set of instincts, so that they would automatically perform their share of the functions of a complex communism. Every major activity now carried on by man might be performed by instinctive automatons, some men being born with warrior instincts, others with worker instincts, and still others with specialized instincts for preaching, teaching, trading, and managing. Such a society would bear a rough resemblance to an organized human group. So closely does instinctive behavior resemble intelligent activity that a distant observer of our imaginary society might even attribute intelligence to its members. But such a group would differ very fundamentally from a truly human group in that the entire round of existence of all its members would be strictly routinized, or stereotyped. Even if we endowed them with a small amount of free intelligence so that they could profit by experience and adjust their modes of behavior to variations in their conditions of existence, the range and variety of their behavioristic modifications would be very narrowly limited. At all times and places the social life of one group would be very much like that of any other. There would be no such thing among them as the rise and fall of civilizations, or cultural evolutions. So long as such a society was not confronted with serious environmental changes not provided for by its instinctive equipment, it would have a security and a perfection of adjustment to environment which might easily excel the achievements of man in most of his societies.

But man, as he is, lacks such an instinctive equipment, but possesses in its place an unequalled capacity to learn. It should not, however, escape us that in certain human groups which have lived for generations in relative isolation and peace, their cultural modes have become so deeply fixed as habitual modes of behavior that the round of life from generation to generation is remarkably like that which would prevail under our assumption of fictitious instincts. Indeed, so slow is the cultural change among most peoples that suitable instincts would serve them nearly as well as the social habits acquired from their ancestors. We shall inquire later what are those conditions which favor cultural change, but we may note in passing that, although an intricate set of instincts would make possible a safe and sane society, it would rob human life of its romance and adventure, and put an end to discovery, experiment, and invention. It would

doubtless do away with a vast amount of human travail, but would make impossible those brilliant epochs of high civilization which lend a certain glory to man's past, and arouse in him the undying hope that he may in the future achieve, through science and reason, a social millennium.

Human Traits Essential for the Origin and Evolution of Culture. Since culture is a peculiarly human product, its origin and evolution rest squarely upon those qualities which distinguish man from all other animals. Of these the most important are: (1) his ability to profit by experience; (2) his power of speech; (3) his tendency to live in groups. This third trait, gregariousness, is not peculiar to man, but is an essential condition for the social effectiveness of the other two. Clearly, these traits are all possessed in rudimentary form by some of the higher animals, such as the anthropoids, and the studies of Köhler and Yerkes reveal considerable capacity to solve difficulties and to learn from experience. Whether there is any transmission of instruction by voice from one to another, or from parent to offspring among apes, seems highly doubtful.³ The full development and hence the full social significance of these tradition-producing qualities are realized only in the case of man. His ability to profit by experience is a consequence of the joint action of memory and his higher powers of mental association. We commonly assume this power to be very great and, in comparison with any other animal, it undoubtedly is. On the other hand, if we observe people at low levels of culture, or ignorant and uninformed people in our own culture, we realize that even the capacity to profit by experience is developed to only a rudimentary degree in man. Such as it is, however, it has been one of the essential bases whereby man has learned how to feed, clothe, shelter, and protect himself in his varied habitats. It is a *sine qua non* for the continued improvement of human life.

It would not, however, have resulted in the development of culture had not man had a definite tendency to live in hordes or groups of varying size. The very term culture implies a group habit, folkway, or custom. There is no such thing as individual culture. An individual way of doing something does not become an element of culture unless it is taken over by a group and

³ See R. M. Yerkes and Blanche W. Learned, *Chimpanzee Intelligence and Its Vocal Expressions*, Williams and Wilkins Co., 1925.

transmitted to the young. On the other hand, we may note that the size of the group is itself very largely determined by the efficiency of the culture as an agency of adaptation. In the absence of some knowledge enabling man more effectively to exploit the resources of his habitat, the original human groups must have been limited to such numbers as could glean subsistence from the bounties of nature. Even such groups, however, may very early have developed some tradition of mutual aid in the face of special dangers, such as wild beasts, fire, or marauding human bands.

But neither man's intelligence nor his association in groups would have resulted in any extended evolution of culture in the absence of the power of speech. It was in consequence of his tendency to communicate, his pre-adapted vocal mechanism, and the tendency of the child not only to acquire speech but also to be greatly influenced in the development of his thought and behavior patterns by it, that is found the essential equipment for transmitting the acquisitions of the past to succeeding generations. We shall note in a later paragraph that the means and arts of communication develop *pari passu* with the size of a social group and the complexity of its relationships.

The Beginning of Culture. We do not know authentically how the first steps toward civilization were taken. But of several things we may be fairly certain. In the first place, man emerged so slowly from the animal stage that no specific beginning of culture can be set. Without any question his first concerns were for food, safety, and reproduction. These would constitute the earliest *drives* to culture building; they would call out the predispositions and aptitudes potential in his psycho-physical mechanisms. He could not have arrived at the human level of physical evolution without having learned a good deal about natural foods, about shelters and safe sleeping places (trees and caves), about how to ward off the attacks of wild beasts, and other necessities of mere existence. All these things his offspring would acquire from him in some form. He contained within himself, in voice, gesture, and the natural expression of emotions, the rudiments of language. His first warning to a child to beware of some danger was an evidence of culture, for through it the younger generation profited by the experience of the older. No doubt, then as now, the younger generation preferred to acquire much of

their knowledge through their own experience rather than the warnings of elders,—a permanent source of fresh knowledge and viewpoints and an essential condition of social change.

In the second place, the earliest steps were not in principle different from the manner in which new customs, or improvements of old ones, arise among us. A new idea is hit upon by an individual. It is communicated to others by word, gesture, and observation. It is tried out in different ways by the universal *trial and error* methods of investigation and experimentation. Very often mere *chance or accident*, in the sense of an unintended or unexpected result, has marked a new departure. Sooner or later the idea takes an approved form which is handed on to the next generation.

In the third place, all of the very earliest implements and weapons would have been sticks, stones, and bones, as they were found in nature. The first advances toward the technical arts were the improvements in these natural instruments of defense. Finally, the earliest stages in cultural evolution were the slowest and longest. All phases of culture evolve more or less together. The development of language, art, morals, religion, and government are dependent on the growth of population; and an increase in the density of population depends on improvements in the arts of hunting, fishing, and food raising. We must suppose, therefore, that man had been on the globe many thousands of years before some genius hit upon the art of chipping stones into implements, and thus laid the basis for the oldest extant evidences of man's handiwork.

PRIMARY ELEMENTS OF CULTURE

Cultural Unit, Type, and Area. If we consider the problem of describing the culture of a community, such as the United States, or New York, or a town in Ohio, or an Indian village, or an Eskimo tribe, we see that after we have made certain general broad statements about it, we must begin to take account of particular features. We could do this by comparisons and contrasts with similar features elsewhere, or by direct descriptions of special aspects of the culture. If then we sought for the cultural origins of the numerous and varied things we found—tools and implements, houses, clothing, furniture, foods and drinks, amusements, religious, moral, and political ideas and practices, forms of the

family and government, and all else, we should find it necessary to break up the whole of the culture into more or less minute fragments. The domesticated animals of the Ohio town, for example, would date back to some Eur-Asian people of not less than 6,000 years ago, and the wheels found in many uses, as well as the main principles of the moral code, would have their prototypes in Babylonian, or even earlier times. The widely used safety pin could be traced back several thousand years to the early stages of the Bronze Age, at least, while the pipes smoked over the very ancient Chinese, or Hindoo, playing cards were derived from the Indians. But the telegraph, telephone, and radio would be strictly modern.

Professor Wissler⁴ has shown that the cultural unit may be called a *culture trait*. This term would include any tool, implement, word, phrase, idea, custom, or mode of behavior of any sort common to an entire group, or a part thereof. It must be



FIG. 47.—A material culture trait of the Old Stone age. It is a lamp presumably of a type used by the cave artists 20,000 years ago. Similar lamps have been used in different parts of the world, and even in Classical times. A single trait may tell us much regarding the development of the handicrafts, artistic taste, and communal life. From G. G. MacCurdy, *Human Origins*, *A Manual of Prehistory*, D. Appleton and Company, 1924, by permission.

conceived in a flexible manner, for we might speak of the dress suit, for example, as a culture trait, but if we attempted to work out the details of its form we should find that the lapels, or the buttons on the back, would also have their own culture history, and might, therefore, be looked upon as traits. (Figure 47.)

But we would have to go further, if we were to take full account of the dress suit as a feature of our culture. We should have to take careful note of what it must be made of, when it should be worn, what it is worn with, and even the special manners that go with it. All these together would constitute the dress suit *culture complex*. It would include a variety of material goods and a still greater variety of social values, manners, and customs.

⁴ Clark Wissler, *Man and Culture*, Thomas Y. Crowell Co., 1923, pp. 50 et seq.

Thus a description of all the traits of a culture in any way connected with a given trait constitutes a complex. We have to think of a culture as made up of a multitude of details, or unit traits, which are first combined into more prominent traits or "simple complexes," which, in turn, are combined into still larger "complex complexes." Thus, if I am describing American culture, I might view the college as a trait. It is a trait that did not exist among the Sioux Indians, any more than the buffalo hunt now exists among us. If, then, I analyzed the college, I should find it to consist of an extraordinarily complex array of characteristic features, all woven together into a unified whole. I should also see that the college was related to many other traits, or complexes, of our culture. It harmonizes with our general cultural scheme, as it would not with that of the Sioux Indians. Some examples of interesting trait-complexes among primitive peoples are the various types of tools; marriage ceremonies; the couvade; the use of tobacco, or corn, or milk, or some other article of food, clothing, or adornment; exogamy; circumcision; blood-letting; sweat-baths; cattle; the horse; reindeer; and so on. It is a valuable exercise in social description and analysis to make a list of all aspects of any trait-complex of our own culture, such as a trade union, a church wedding, the retail store, the newspaper, a church, the Constitution. In doing so one would observe how two culture complexes mutually affect each other; how, in fact, there is a high degree of adjustment of one trait-complex to all others of the same culture.

The trait-complex may be *material*, as a tool, a pipe, or a hat; or *immaterial*, as a dogma, a myth, a theory, or a ceremony. Professor Sumner called the immaterial traits, the *folkways* and *mores*. By folkways he meant any habit or custom common to members of a group; and by mores, those folkways believed to be related to group welfare. In primitive and isolated groups there is a tendency for most of the folkways to acquire more or less of the feeling attaching to the mores; they tend to become sacred and hence inviolate to a degree. The French sociologist, Émile Durkheim, called the immaterial traits, *collective representations*, and gave them a separate existence over and above individuals, as shown in the paragraph "Group Mind" in the preceding chapter.

A *culture center* is the place where a culture trait originated; and the *culture area* the territory throughout which it spreads.

It seems to be a general rule that the center in which a trait originates is the place where it attains its greatest elaboration. Professor Wissler⁵ has shown that various traits of Indian culture, such as a type of axe, a canoe, or the Sun Dance, spread outward from the center in a series of concentric circles. The oldest and crudest form of the trait is found farthest from the center, the newest and most highly developed form is found at the center, while in between are the intermediate stages. The outlying zones to which a trait reaches, where it is found in an attenuated form,

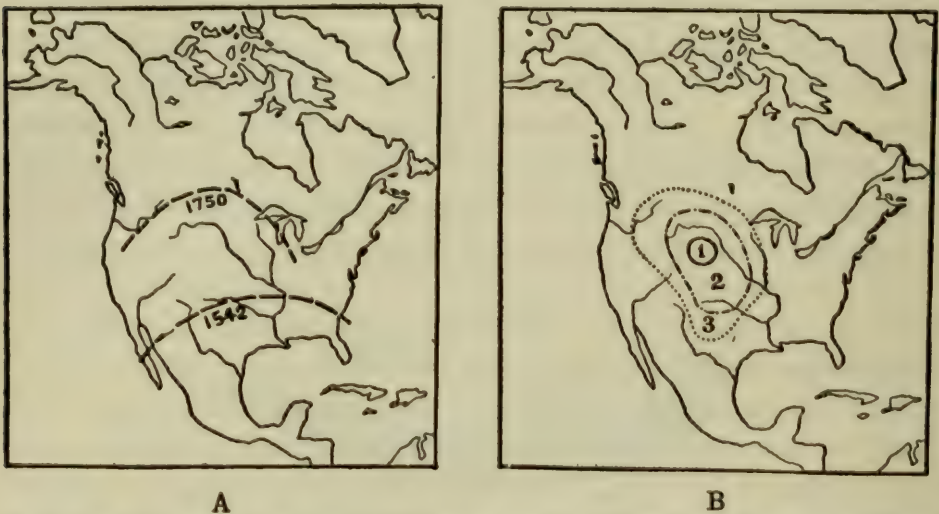


FIG. 48.—A, illustrates the spread of the horse culture among the Indians. It took about two centuries for the use of the horse to spread from the Mexican border into Canada. B, illustrates the spread of a Dance Complex among the Plains Indians: 1, — to 1860; 2, 1861–1875; 3, 1876–1900. Note the concentric relationship of the three areas. The complex was more elaborate in area 1 than in 2, and more so in 2 than in 3. From Clark Wissler, *The Relation of Nature to Man in Aboriginal America*, Oxford University Press, 1926, by permission.

and where it meets with greatest resistance and modification in becoming integrated with the rest of social life, constitute the *marginal areas*. These concepts are not always easy of application to current phenomena, because the rapidity of communication and transportation and the extensive area of western culture obscures the centers of origin. This is notably true of scientific discoveries and mechanical inventions. Nevertheless, illustrations are not lacking in the spread of new fashions of speech, dress, song, music, dancing, art, or business methods from Paris, London, or New York. (Figure 48.)

⁵ *The Relation of Nature to Man in Aboriginal America*, Oxford Univ. Press, 1926.

The culture center and area concepts are useful as regards the origin and spread of great advances in the industrial arts which have originated once only and in a definite area, such as the smelting of bronze and of iron. They are useful also for designating those centers of higher civilization from which influence radiated outward over extensive areas, such as the Nile Valley, Athens, and Rome. A modern instance is found in the world-wide influence of England in economic development. It was there that the factory, or capitalist, system attained its first clear form. Since then it has spread to nearly all countries, some of which now surpass England in certain features of the system. Nevertheless, we still see in England certain more mature aspects of capitalism, such as the organization of labor, collective bargaining, international finance, and economic imperialism, than have yet been attained elsewhere. At the same time, scientific management is a feature of the capitalist system that originated in this country, and has spread elsewhere, but is now more highly perfected here than abroad. The same is true of the telephone, electric lighting, central heating, the skyscraper, and the automobile. The capitalist center seems now to be shifting from London to New York.

The cultural features combine in such a way as to give more or less distinctiveness to the whole. There is clearly a difference in the main outlines of Eskimo, Hottentot, or American culture; but there is a very great underlying similarity between American, English, German, and French cultures, just as all of these contrast with Chinese or Hindu culture. We may say that the American, English, German, and French cultures are of the same *culture type*, because their prominent complexes are similar. They are variations of western culture, a culture type whose content centers about such complexes as science, machinery, Christianity, and democracy; its area includes Europe, the Americas, Australia, and South Africa.

At the same time there are obvious differences in the way the cultural elements are combined in these countries, differences in emphasis and arrangement of parts. Machinery and mechanical power play a much larger rôle in American life than in French, and there are equally striking differences as regards literature, art, militarism, and social amusements. The term *cultural pattern* may be used to indicate the fact that similar elements may

be combined in many different ways. A given type may have numerous patterns, much as a particular kaleidoscope may reflect varying forms, combinations, and intensities of light. Illustrations are endless, whether we consider such types as pastoral nomadic, horticultural, or agricultural among primitive peoples, or the ever-changing pattern of our own culture. Machinery enters into our scheme of life in ever-changing ways; so also do Christianity, ideals of democracy, education, science, and forms of business organization. As these change, other features of our culture change so as to maintain unity and adjustment throughout the whole. We may say much the same of particular elements of a culture. The type of dress, for example, among Europeans is much the same to-day as it was a century ago, when compared with other types, such as Chinese or African. But the style, or pattern, has constantly changed. Moreover, within a general culture type, as western culture, will be found various sub-types more or less clearly differentiated from each other. Thus we see differences between rural and urban life in the same general type and area, as also between such places as mining center, fishing port, rural town, and metropolis.

The Universal Culture Complexes. At first glance over the extraordinarily varied cultures of groups now living on the earth, it might appear that there was no unity or similarity among them. It is indeed true that it is not possible to reduce all these varied cultures to a thoroughly satisfactory and simple homogeneous scheme. Nevertheless, there appears to be an underlying skeleton, or *framework*, by means of which they, one and all, can be more clearly understood. This framework is a consequence of the major factors which have entered into the evolution of these cultures themselves. The original factors in cultural beginnings were, of course, the earth and man himself. While habitats differ one from another, we have seen that the habitat is merely a stage or arena in which man with his internal drives and potentialities works out his destiny. This underlying similarity in the complexes of all cultures, therefore, is essentially due to the similarity of the human mind at all times and places. The hereditary constitution of man has expressed itself in human culture, and given it everywhere a basic similarity.

The primary divisions of this cultural scheme have been worked out by ethnologists and sociologists in their efforts to describe

the cultures of primitive peoples. The classifications which they have adopted for their data or observations set forth their pictures of the general scheme of human culture. We, therefore, find a considerable similarity in the major groups of social phenomena as they have been worked out by different scientists. Thus Herbert Spencer, in his *Principles of Sociology* (1876), classified the various social institutions as: Domestic, Ceremonial, Political, Ecclesiastical, Professional, and Industrial. Professor Thomas ⁶ classifies his material under the following headings: Habitat; Mental Life and Education; Invention and Technology; Sex and Marriage; Art, Ornament, and Decoration; Magic, Religion, and Myth; Social Organization, Morals, and the State. Professor Wissler ⁷ attacked this problem directly and worked out what he calls the "Universal Pattern," which we prefer to call the cultural framework, under the following headings: Speech; Material Traits; Art; Mythology and Scientific Knowledge; Religious Practices; Family and Social Systems; Property; Government; and War.

The Cultural Framework. It would be possible to offer a few but unimportant criticisms of these outlines. It is obviously impossible to make clean-cut classifications of many features of a complex social system, for the simple reason that different aspects of culture become inextricably interlocked. Thus, for example, the mythology of a people is intertwined with its material culture and its art on the one hand, and with its religion and morals on the other. Likewise, religion affects industrial life, artistic expression, the form of the family, property rights, governmental organization, and even the military activities of a people. It is thus not even possible to draw a sharp line between what have been called the material and the non-material elements of culture. It is even possible, as noted above, to hold that all material culture traits are consequences of knowledge and technique, and thus make all culture essentially immaterial. We cannot even say with any degree of exactness that some elements of culture are adaptive in the sense that they tend to fit man for his particular habitat, while others are non-adaptive in the sense that they bear no relation to habitat. One could easily find such differences, but their interrelationships would prove confus-

⁶ *Source Book for Social Origins*, University of Chicago Press, 1909.

⁷ *Man and Culture*, pp. 73 et seq.

ing to any sharply logical classification. At best, therefore, we can only hope to find a classification which is comprehensive, which includes only elements found among all peoples from the most primitive to advanced, and which satisfies both our sense of logic and of social importance. We venture, therefore, to present the following scheme, not necessarily as an improvement over others, but as a reclassification of the major elements. If one will add to these universal culture complexes, the headings, "Territory," and "Race or People," he will have most, if not all, the topics essential for the description of the social life of a community.

1. Language and Communication
 - a. Gestures and Symbols
 - b. Spoken Language
 - c. Writing
2. Practical Knowledge and Industrial Arts
 - a. Food
 - b. Clothing
 - c. Shelter
 - d. Tools and Technique
 - e. Property
 - f. Personal Services; the Professions
 - g. Barter
 - h. Transportation
3. Genetic Groups and Mores
 - a. Love
 - b. Marriage
 - c. Family
 - d. Blood Relationship Groups, their Rights and Duties
4. Ideas and Practices Regarding the Nature of the World and Man
 - a. Myth
 - b. Magic
 - c. Theology and Religious Practices
 - d. Medical Beliefs and Practices
 - e. Scientific Knowledge and Experimental Methods
5. Ideas and Practices Governing Private Relations of Individuals
 - a. Manners and Ceremonial Forms
 - b. Private Morals
 - c. Voluntary Associations
 - d. Play and Sports
6. Ideas and Practices Governing Public Relations of Individuals
 - a. Ethical Customs and Institutions
 - b. Juridical Forms and Institutions
 - c. Political Organizations and Institutions

7. Art and Decoration
 - a. Personal Adornment
 - b. Drawing, Painting, and Sculpture
 - c. Music
 - d. Architecture
8. War and Diplomacy

Conditions Back of the Cultural Framework. Cultural differences are always more striking than cultural similarities. So attached is every individual to his own cultural modes that he is prone to look upon any variation from them as evidence of oddity and inferiority. Even the earlier stages of ethnological research are marked by an excessive emphasis on cultural peculiarities and dissimilarities. But we should beware of exaggeration and over-emphasis here. Underneath striking differences we shall observe much of similarity, as we have shown in our discussion of the universal features of a social system. This broad similarity between the behavior of men living under quite different cultural stimuli may be accounted for by three very important facts.

1. *The Physical Needs.* In the first place, in all societies, even in the most complex and refined, life continues to center around the satisfaction of physical needs. Hunger is much alike among all peoples. Though it may be satisfied by quite a wide range of foods secured in different ways, and though these ways depend much on geographic habitat and stage of cultural advancement, there is, nevertheless, a central core of similarity which makes all the world akin. The same may be said of activities centering about clothing and shelter. Likewise, the sex interests give rise everywhere to similar practices. The onset of puberty gives rise to similar urges, and these find expression in relations between the sexes, which in spite of wide variations, retain a fundamental uniformity.

The importance of common human needs in bringing about cultural similarity can scarcely be over-emphasized. If we take food as perhaps the best single example of a universal need, we see that it involves acquisition of raw materials, their preparation, and consumption. The acquisition gives rise to hunting, fishing, gathering of fruits, grains, nuts, herbs, roots, tubers, and leaves; and these involve the making of tools, the development of technique, and some division of labor; and these, in their turn, may involve phenomena of coöperation, leadership, territorial and

property rights, and principles of authority, law, judicial procedure, and inter-tribal agreement in the maintenance of sources and division of products. All of these elements will, consequently, be found in all cultures. The preparation of the raw materials requires technique, tools and utensils, and fire; hence these also are universal cultural elements. Even the consumption of the food requires a considerable degree of similarity in behavior.

2. *The Logic of Materials and Situations.* But we can go further. While man is an omnivorous feeder, there is a definite limit to what is humanly edible, and a still narrower limit to desirable foods. The methods of acquisition are similarly limited by the nature of the raw materials, man's physical strength and agility, and the kinds of materials out of which tools and utensils can be made. Fish, for example, can be caught in several ways, with bare hands, hooks, spears, nets, and weirs. Hooks, or spears, or nets, or weirs can be made out of a limited range of materials and must conform to certain general principles in order to accomplish their purposes.

There is thus, as a second condition making for cultural similarity, a certain inevitable logic in materials and practical prob-

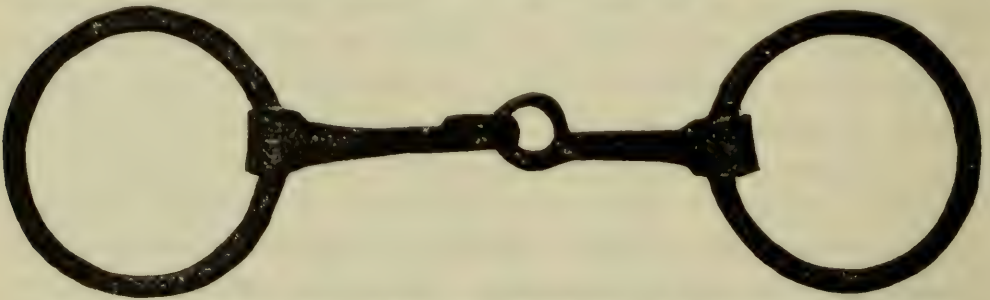


FIG. 49.—A bronze bridle bit found on the site of a lake village in Switzerland of about 500 B. C. The model for such a bit originated in western Asia more than a thousand years earlier. It indicates that the bronze culture and the use of the horse had spread into western Europe. Very similar bits, but made of iron, are now in use in this country. It illustrates not only cultural diffusion but also the logic of materials and situations. After Paul Vouga, *La Tène, monographie de la station*, Leipzig, Karl W. Hiersemann, 1923.

lems. The logic of stone is different from the logic of wood, and both differ in this respect from iron, wool, or hides. Likewise, the logic of fishing differs from that of agriculture, as does every practical pursuit from every other. The logic here involved grows out of the way in which the universe and its multiplied parts are put together, and the ways in which they work or are

workable. As Professor Goldenweiser has very neatly said: "The logic observed in early tools and weapons, traps and snares, pots, houses, and boats, is the logic of nature itself, the logic of the objective relations of things which, through the medium of action, molds the mind so inevitably and smoothly as to be almost wholly unconscious." ⁸ (Figure 49.)

3. *Unity of the Human Mind.* In the third place, there is a fundamental unity of the human mind at all times and places. This means that there is not merely a considerable similarity in the internal drives and in the innate tendencies to respond, but that there is a similarity in the thought processes. This does not mean that races are equal in powers of logical thought, much less that they are equal in powers of abstract thought. It does not even mean that all races under exactly similar social conditions would solve their problems in exactly the same way. We do not know and cannot know whether they would or not. What is meant is that they would show great similarity in their solutions. Proof of this is seen in the numerous ways in which the early American colonists and pioneers imitated the Indians, and in the ways in which arctic explorers take over manners and customs from the Eskimos.

Through this similarity of mental processes, even in the absence of imitation or diffusion, we may account for some of the similarities not only in material culture but also in the immaterial culture represented by moral, religious, æsthetic, political, and ceremonial institutions among widely scattered people. The extraordinary range and variety of social custom is an evidence of the remarkable versatility and adaptability of human nature, but since it is always and everywhere human, it retains a fundamental similarity, even when it seems most diverse. The Iroquois lad would learn to worship his tribal totem, to be ready to die in warfare for his tribe, to carry out the principle of clan blood feud, and to shoot Englishmen on sight, whereas the New York lad would learn to worship the Cross, to be ready to die in warfare for his country, and to persecute socialists and communists, and to shoot, stab, or poison his country's enemies in war time with gusto and sanctity. It is this broad similarity between folkways in all parts of the world that makes possible a science of eth-

⁸ A. A. Goldenweiser, *Early Civilization, An Introduction to Anthropology*, A. A. Knopf, 1922, p. 406.

nology and furnishes a basis for sociological generalizations. It is for this reason also that men are able to pass with more or less ease from one culture to another. Professor Wissler⁹ tells of an Indian who was raised as an Indian and lived as such in his youth but later "lived and thought as a white man." While the cultural impressions of childhood and youth may be supposed to leave in all such cases a certain indelible impression, these cases show clearly that no culture anywhere is alien to man.

ETHNOLOGICAL THEORIES

The Orthogenetic Evolutionary Doctrine of Culture Stages. It is a truism to say that all modern thought has been deeply affected by evolutionary concepts. When these concepts were applied to theories of historical development they took the form among the earlier writers of the doctrine of orthogenetic, or monotypical,¹⁰ social evolution. By this was meant that there are certain definite stages or types of social organization grading from lowest to highest, which may be arranged in a serial order such that every society in its evolution from most primitive to most advanced conditions passes through these stages in successive order. It was thus thought possible to classify the culture of a people by first determining some of the outstanding features of this culture, and then cataloging it in one or another of a predetermined series of stages.

One of the most perfect illustrations of an orthogenetic series is that developed by Lewis H. Morgan in his *Ancient Society* (1877). He presented the following "Periods of Progress": I. Lower status of savagery, from the infancy of the race. II. Middle status of savagery, from the acquisition of a fish subsistence and knowledge of use of fire. III. Upper status of savagery, from the invention of the bow and arrow. IV. Lower status of barbarism, from invention of the art of pottery. V. Middle status of barbarism, from the domestication of animals in the Eastern Hemisphere, and from the cultivation of maize and the use of adobe brick and stone in the Western. VI. Upper status of barbarism, from the invention of the process of iron

⁹ *Man and Culture*, p. 13.

¹⁰ A. M. Tozzer, *Social Origin and Social Continuities*, The Macmillan Co., 1925, pp. 14-17.

smelting and use of iron tools. VII. Status of civilization, from the invention of a phonetic alphabet and use of writing.

This scheme was, no doubt, valuable and suggestive when it was first published fifty years ago. In some respects it is still worth noting, because it picks out from among the vast array of human inventions and discoveries a series, each worthy to make a stage in the advancement of man from savagery to civilization. But the general picture presented by such a scheme and the distinctions indicated between one stage of savagery and another, and between savagery and barbarism, are too simple. It is utterly impossible to classify whole cultures by the presence or absence of a single trait. Such a trait may be handed about, or independently discovered, without being associated with the other traits necessary to mark an entirely new stage. Thus certain West African tribes knew how to smelt iron, but were in many respects too primitive to be entitled to a place next to the top in cultural evolution. Not only are other important inventions such as bronze smelting, the wheel, the boat, and weaving omitted in Morgan's list, but no attention is given to the evolution of many highly important non-material aspects of culture, such as the family, social organization, and ideas of the nature of things in general.

There are many other illustrations of such stages, notably in economic history. Thus, Professor R. T. Ely ¹¹ gives the following series of stages: I. Direct appropriation; II. The Pastoral Stage; III. The Agricultural Stage; IV. The Handicraft Stage; V. The Industrial Stage. It is easy to assume that a people living in the pastoral stage is, therefore, inferior to a people living in the agricultural stage, and also that the peoples living in such a low stage of culture as direct appropriation could not reach the agricultural stage without passing through the pastoral stage. Subsequent investigation has shown that such a view gives rise to erroneous conclusions. There are too many cases of people who have arrived at some form of agriculture without ever having been the nomadic herdsmen called for by the pastoral stage. Clearly, a people could not pass through a stage which was entirely unsuited to their habitat. It does not seem likely that Eskimos, for example, would ever become primarily either nomadic herdsmen or settled agriculturalists. Nor is it likely that

¹¹ *Outlines of Economics*, The Macmillan Co., 4th rev. ed., 1923, Chap. iii.

the Indians of the heavily forested areas of the torrid zone would develop an extensive pastoral economy.

Moreover, it was assumed that peoples living in a pastoral stage, for example, would all have cultures similar as regards not merely their economic basis, but also as regards their governmental, domestic, moral, and religious institutions. It was, however, discovered that great diversity prevails as regards these institutions among pastoral peoples. Similarly, agricultural tribes vary greatly, not only as regards these institutions, but even as regards many important features of agriculture itself.

The critics of classical evolutionism thus succeeded in showing that a simple, clean-cut series of stages was by no means universal. No such series can be applied, like a yardstick, to measure the social development in any area. The change of view here is exactly like that with respect to the evolution of man. Instead of thinking of man as having evolved in a straight line from a monkey stage, through an ape stage, to *Homo sapiens*, we now think of him as having evolved along a number of more or less diverse lines, like a many-branching tree. So the development of the social heritage follows many lines, depending on differences of place, of contacts, group crises, racial temperament, and historical accident. At the same time, we may note with equal emphasis that the critics of evolutionism became so impressed with the diversity of cultural patterns, and so often immersed in the detailed study of these differences, that they reached the conclusion that there are no similarities, that the social development in every area is unique. This is flying from one extreme to another.

Cultural Parallelism. We reject the theory of monotypical evolution as too simple. Nevertheless, we wish to retain the doctrine of evolutionary stages in a more flexible form. This we do by the idea of cultural parallels. By this is meant that successive phases of social development, either of culture viewed as a whole or of certain parts, are repeated in widely separated areas of the world. Such repetitions are not to be explained by the transfer of goods or ideas from one area to another. They result from the general principle that like causes produce like effects. Of course, the causes or conditions are never precisely the same, so that the repetitions are similar in main outline rather than in detail. They are due to the similarities of human needs and thought processes, and the uniformities and limitations of

nature. The processes involved in cultural evolution are complex, its aspects numerous, and the possible combinations of traits diverse. It results that we shall find similarities associated with striking differences. Thus the economic stages above mentioned have been repeated in a broad general way in all those areas where high civilizations have arisen. In many parts of the world, peoples passed from the use of stone implements to the use of copper, and then to bronze. Towns have always preceded cities, just as shelters have preceded houses, and houses, temples. Professor Wissler says: ¹² "Cultures fall into types and the number of these types is not very great."

An interesting generalization applicable here is that of Comte to the effect that human thought evolves from religious to metaphysical concepts, and then to positive or scientific. This view is at the basis of Spengler's recent ambitious attempt to reduce all the great civilizations to successive parallel phases. He holds that each of these great cultural waves was about fourteen centuries long, and that there is a certain similarity in what took place in each of them in successive centuries of the cycle. His results are not convincing, but they suggest that civilizations in their rise and fall pass through a series of transformations which are similar in basic outline. The elucidation of such a series is one of the greatest tasks of historical and sociological study.¹³ In later chapters we recur to the concept of stages.

The Diffusion Theory. Another significant school of ethnologists, now commonly referred to as the Elliot Smith-Perry School, contends that all the basic elements of culture in all parts of the world originated once and for all in the Ancient East, mainly in Egypt, and spread from there to all parts of the world. We shall not attempt to give here an account of their reasoning and methods. All ethnologists and sociologists accept the fact that cultural elements may spread from a center of origin to distant parts of the world. Man has a strong predilection to imitate any device or mannerism which appears to be effective in accomplishing his purposes. In our time this is a matter of frequent occurrence, so frequent as to be taken as a matter of

¹² *Op. cit.*, p. 25; see also pp. 193-194.

¹³ See Oswald Spengler, *The Decline of the West*, A. A. Knopf, 1926; his views have been popularized by E. H. Goddard and P. A. Gibbons, in *Civilization or Civilizations*, Boni and Liveright, 1926; for criticism, see F. H. Hankins, "The Latest in the Philosophy of History," *Social Forces*, Vol. 6, 1927, pp. 213-216.

course by even the man in the street. But it is not so clear that similarities between implements or practices, say of the ancient Egyptians and the ancient Peruvians, were due to the spread of the Egyptian inventions to South America, across oceans and mountains, in the days when the arts of transportation were still undeveloped. Such diffusion is not impossible, but seems highly improbable.¹⁴

But such problems are reserved for the expert archæologist and ethnologist. We are interested here in noting that it was not until recently that the ease and extent of cultural diffusion

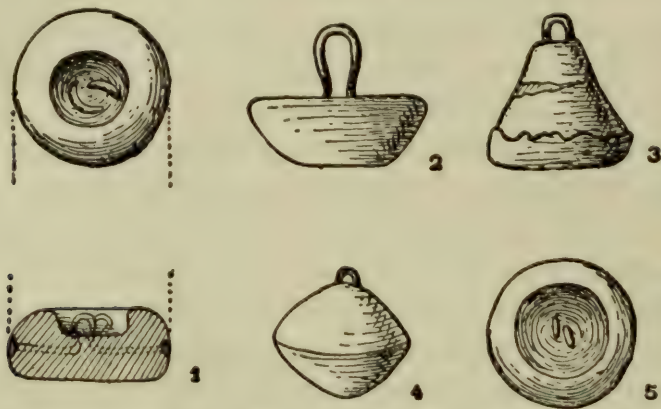


FIG. 50.—A set of bronze weights used in the commerce of the Swiss lake villages more than 2500 years ago. The development of such exact weights and measures indicates trade contacts with the older cultures of the Mediterranean. From G. G. MacCurdy, *Human Origins, A Manual of Prehistory*, D. Appleton and Company, 1924, by permission.

was fully appreciated. The above-mentioned school has doubtless exaggerated its possibilities. But even so, the recent studies in the migrations of peoples, of ancient trade routes, and the distribution of symbols and works of art, pottery, tools of industry, and implements of warfare, have shown that traits of culture have spread from some parts of the Eur-Asian continent to far distant communities. As long ago as 10,000 years, there was an exchange of goods, especially of ornaments and works of unique value, from the eastern end of the Mediterranean to the Baltic

¹⁴ The views of the English school of extreme diffusionists are readily accessible in W. J. Perry's *The Origin of Magic and Religion* and *The Growth of Civilization*, E. P. Dutton and Co., 1923; for a severe criticism, see R. R. Marett, *The Diffusion of Culture*, Cambridge Univ. Press, 1927; for some very interesting studies in diffusion see A. L. Kroeber, *Anthropology*, Harcourt, Brace and Co., 1923, Chaps. 8, 10, and 11; see also A. A. Goldenweiser's very valuable discussion "Diffusion versus Independent Development," *op. cit.*, pp. 301-324.

Sea. Some centuries ago, western civilization derived from China the printing press and gunpowder, two of the most revolutionary inventions of modern times. (Figures 50 and 51.)

The agencies by which diffusion is carried on are: trade, travel, communication, migration, and war. In our own time we are witnessing the spread of western culture by all these means to the ends of the earth. Japan, as the Hermit Empire, was able to avoid the modification of her ancient culture, derived largely from the Chinese, so long as she resolutely refused to admit western traders and travelers. Since then she has undergone a remarkable transformation. With a rapidity and efficiency that reveal the highest astuteness and the most complete social control, she has put off her medievalism and put on modernism. She has added many billions to her wealth and many millions to her population, built

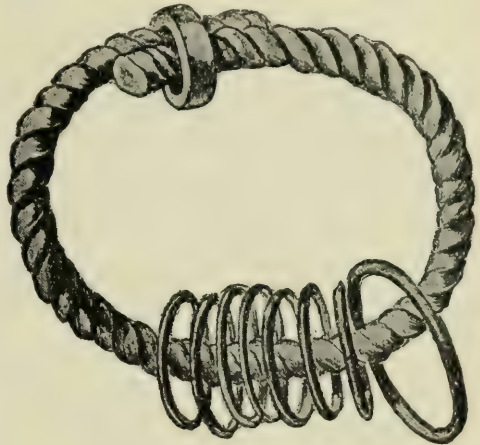


FIG. 51.—A purse (twisted bar) and money (bronze rings) from a Swiss pile village. From G. G. MacCurdy, *Human Origins, A Manual of Prehistory*, D. Appleton and Company, 1924, by permission.

factories and fleets, raised up an army and a navy on the latest improved models and become a world power. Meanwhile many other features of her social system have been deeply affected by western ideas, manners, and customs.

The Theory of Independent Origins. Opposed to the diffusionist theory, in accounting for the similarities among the traits of primitive culture, is the doctrine of independent origins. This holds that there is no reason to suppose that an invention once made could not be made again by a different people. It is argued that there is a similarity in the methods of operation of the human mind everywhere; and that, therefore, under conditions that were much the same, similar inventions or discoveries would be made. This view is entirely plausible. The history of modern science and mechanics shows that some of the most difficult inventions of modern times were made almost simultaneously but quite independently by men in different parts of Europe or America.

Here is an illustration of how minds of similar power, sharing a similar culture and hence confronted with similar problems, have worked out similar solutions. The problem is not so simple as this in the case of primitive peoples, because their cultures would not be similar in so many respects as that of Europe and America and would be less stimulating to active search for solutions of pressing problems. Nevertheless, there are many illustrations of independent origins, in both the material and the immaterial aspects of culture.

The Theory of Cultural Determinism. 1. *Meaning.* This theory holds that culture is the sole explanation of its own development. It holds that, if we wish to explain the customs, mores, tools, and social institutions of a people, all we need to do is to inquire into the history of their social development. This view lays great stress on cultural diffusion; and it admits that independent inventions are more or less frequent. But it holds that such inventions spring from the cultural medium itself. Moreover, when cultural elements are derived by diffusion, they are accepted only to the extent that they can be fitted into the existing social arrangements.

2. *The Interaction of Factors.* As stated in the previous chapter, there is a reciprocal action between the human mind and its social medium. That medium gives content to the minds that share it, specific direction to their thinking, and stimulation to the mental energies. It follows that there may be great cultural changes without any changes whatever in either the natural habitat or in the quality of the population.¹⁵ Such changes may be largely explained by the fact that there is an intricate and subtle interaction of different aspects of culture one with another. We must conceive the evolution of a social system in terms of a moving equilibrium of a multitude of interacting factors. A change at one point reacts throughout the entire system so as to produce a modification in the relationships and adjustments of all parts of the system. In a rapidly changing culture, such as our own, this means that some features of culture have altered more rapidly than others. This sets up what Sumner called "the

¹⁵ W. F. Ogburn, *Social Change with Respect to Culture and Original Nature*, B. W. Huebsch, 1922; see also the very effective essay by A. L. Kroeber, "The Superorganic," *American Anthropologist*, Vol. 19, 1917, pp. 163-213; the cultural deterministic view is also represented in the writings of the Durkheim School in France, and in Sumner's *Folkways*, Ginn and Co., 1906.

strain toward consistency" among the folkways. Ogburn has referred to the same inconsistency as "cultural lag." Much of our democratic theory rests on eighteenth century backgrounds; Sunday blue laws do not harmonize with an age of automobiles and great urban populations; opposition to the teaching of organic evolutions is inconsistent with the spirit of science.

The best illustration of this in our own culture is the progress of science and its effects. It has deeply affected every feature of our social system. It has modified the social rôle of the natural habitat by soil analysis and fertilization, by the creation of new plants and animals, by the discovery of new elements of resources and how to exploit them, and through knowledge of the weather. Science has been largely responsible for the enormous expansion of industrial activity, which has, in turn, made possible the unprecedented growth of population in the white-man's world since 1800. It has even affected the quality of the population both for better and for worse through the development of medical knowledge and sanitation. In various ways, but especially through birth control, the progress of science is affecting sexual morals, the size of the family, the status of woman, and the quality of the racial stock. Science is displacing myth, magic, and theology, and undermining the simple religious ideas and faiths of our fathers. It is supplying a more solid foundation for the ethical code, has introduced new criteria into judicial procedure, and deeply affected both political institutions and practical politics. Equally obvious are its effects on decoration, music, and architecture, while it has completely revolutionized the arts of war. It has stimulated international trade and communication and thus raised questions of world organization and permanent peace. In somewhat the same manner, it would be possible to show how other features of the social scheme, such as moral and religious ideas, growth of wealth, and governmental organization have affected the progress of science. It is for this reason that we may speak of any feature of culture as a factor in social evolution. Thus the cultural pattern, with a woof of a million strands woven by man, on a warp of his own nature and the earth's resources, becomes a fabric of infinite complexity, of ever-changing hues and proportions.

But there is an even more profound aspect of this interaction. We have seen that, though man gives culture its start and con-

tinues as its active architect, we may also say, paradoxically but with equal validity, that the culture into which man is born makes him into a being after its own image. In like manner it is customary to speak of culture as a product of society. And so it is. But it is equally true that society is a product of its cultural heritage. Every cultural advance removes man a bit further from his primitive wild state, specializes his activities, and renders him more dependent on the social organization as a whole for his life and comfort. If we took away from our social achievements only science and machinery, the social system would be different in every feature. The same framework would be there. There would be the same warp of biological inheritance and physical nature; there would even be much of the same woof of wont and custom; but the colors would be different, and the designs would be altered in form and proportions. We should have a new cultural pattern and a new society.

3. *The Superorganic.* It is for such reasons among others that culture may be looked upon as a distinct and separable set of phenomena. Herbert Spencer held that there are in all nature three such sets, and he designated them the inorganic (the physical), the organic (biological and psychological), and the superorganic (culture or civilization). Referring to Chapter I, we see that each of these rests on the preceding; and yet each is sufficiently distinct to become an object of study in itself. Just as psychological processes of stimulus and response can be studied without constant reference to biological processes, so the processes of social change can be studied without constant reference to the biological or psychological phenomena which accompany them.

Spencer held that certain animal groups, such as bees and ants, display the beginnings of superorganic phenomena in their control of members, specialization of activities, punishment and exclusion of members, and the like. Superorganic phenomena thus arise by insensible degrees out of the organic. They begin in the interaction of individuals and in the coördination of functions. In the case of man these give rise to tools, clothing, houses, customs, and institutions of every sort, material and immaterial. "These various orders of superorganic products, each developing within itself new genera and species while growing into a larger whole, and each acting on the other orders while reacted

on by them, constitute an immensely-voluminous, immensely-complicated, and immensely-powerful set of influences. During social evolution they are ever modifying individuals and modifying society, while being modified by both. They gradually form what we may consider either as a non-vital part of society itself, or else as a secondary environment, which eventually becomes more important than the primary environments—so much more that there arises the possibility of carrying on a high kind of social life under inorganic and organic conditions which originally would have prevented it.”¹⁶

With this view of Spencer's we fully agree, with one very important exception. It is not logically sound to look upon the activities of the so-called social insects as truly superorganic. All their activities can be explained in terms of biological inheritance. A single queen bee can restore the entire hive and all its modes of life. There is in the hive no such thing as tradition, no acquisition of customary ways by processes of learning, no invention of new ways, which are, in turn, transferred to other hives by processes of imitation or diffusion. Given the organic constitution, the pseudo-cultural activities follow. The only way in which the bee can acquire distinctly new modes of behavior, as a species, is through biological mutation. It is, in fact, extremely doubtful whether these insects should be called social. There appears to be no organized direction of activities. Even their apparent coöperation seems to be due to purely instinctive impulses which each follows as faithfully as he does his impulse to eat. Bee and ant colonies might thus be called anarchistic communisms.

In the case of man, however, there are few, if any, inherited and stereotyped modes of behavior. He has instinctive urges, plus an enormous capacity to learn, or to acquire behavior patterns. He began with no culture; and each infant begins in the same way. To be sure, the first steps in social achievement were results of his urges and his powers of association. These traits continue to function in the evolution of the social medium, but this changes constantly as a result of invention, borrowing, and transmission to succeeding generations. As it changes, it alters the behavior patterns of individuals. Culture is for man an acquisition. It is not a biological inheritance, but a social heritage.

¹⁶ *Principles of Sociology*, 1871, Chap. i.

4. *Invention.* The viewpoint of cultural determinism can be clarified and illustrated by a study of inventions. We commonly think of invention as an improvement in a tool or a machine. Somewhat more broadly, it includes any improvement in the industrial arts. It may be still more broadly conceived to include any change in customary ways which is looked upon at the time as an improvement. It thus becomes synonymous with social change. In the early days of social evolution, inventions were few and far between. Periods of rapid progress are periods of numerous and frequent inventions. Periods of social decline, which have always alternated with periods of advancement, are times when effective inventions are rare. The eugenicist would say that the men of genius needed to make them are lacking; but the cultural determinist would say that some of the conditions essential for their effective application are wanting.

In any case, nothing is clearer than that invention is dependent on the stage of culture. An innovation of any sort can be understood only in the light of its social context. No invention can appear until all the necessary preliminary steps have been taken. Polished stone appeared only after chipped stone; steel appeared only after iron had been in use a long time in many places; the gasoline engine was necessarily preceded by many preliminary achievements; and a gasoline engine suitable for airplanes was made only after long experimentation and use of gas engines in many ways. This means that every tool and machine now in use can be traced back through an indefinitely long line of antecedent inventions to the very beginnings of human society. The elaboration of the various aspects of culture is thus very much like the growth of a great tree. There is, therefore, no such thing as complete originality. Even those discoveries which appear to be accidental are undoubtedly related to the existing state of culture, or otherwise their significance for human purposes would not be realized.

Moreover, it is doubtless true that most of the inventions now credited to particular inventors would have been conceived by someone else at much the same time. So highly stimulating is the social medium at times that many minds are at work trying to solve the same problems. What appear to be revolutionary inventions are sometimes the results of the slow accretions of numerous small improvements. The inventor who puts the final

touch to a series of improvements often gets the credit for what appears to be a marvelous advance. Thus the recent invention of the airplane was accomplished almost simultaneously in both Europe and America. Both Langley and the Wright brothers claim priority in this country. In fact, it has been shown that a great number of modern inventions and discoveries, apparently of the most difficult sort, have been made both independently and almost simultaneously by different persons in different countries.¹⁷ We may find an illustration in the theory of the origin of species by natural selection. Both Darwin and Wallace share the glory of stating it. Spencer came very close to it, in his famous essay of 1852. It was even implied in the theories of Malthus; or indeed in those of Franklin at an even earlier date. But about 1850 many minds were thinking along that line. The theory was literally "in the air"; it was being powerfully suggested by the current state of scientific knowledge and thought. It would have taken definite form sooner or later.

Not only is invention dependent on the stage of cultural advancement, but the latter varies enormously in the number and variety of suggestions which it furnishes to inventive minds, and also in the extent of social repression against cultural change. We note in a later paragraph that isolated communities are relatively unprogressive. We may also say that, in the vast majority of communities, the established and approved ways constitute an almost insuperable obstacle to any sort of change or improvement. If we seem to welcome inventions and take enormous pride in the rapidity of our so-called progress, and if primitives seem to us almost irresistibly opposed to any kind of innovation, we may nevertheless be certain that these differences are only differences of degree. Stubborn opposition to obviously desirable change is still everywhere evident, though the kind of change opposed varies from area to area, and class to class.

As a special aspect of the preceding, is the importance of the "run of attention," or the dominant cultural complexes. Under the stimulus of certain impressive conditions, either external or internal to the group, the attention of clever and inventive minds tends to become centered upon improvements along certain lines

¹⁷ Kroeber, essay cited; also Ogburn, *op. cit.*; the latter gives a list of 148 such simultaneous creations; see also his "The Great Man Versus Social Forces," *Social Forces*, Vol. 5, 1926, pp. 225-231.

more or less to the exclusion of others. In other words, just as there are styles or modes in dress, furniture, houses, and similar things, so there are styles in cultural improvements. Thus, the conditions affecting the development of Roman civilization, including the geographical situation, centered much of the attention of Roman thought upon the development of law and administration, including the perfection of military forces and the construction of highways. This, with the continuing prestige of Greece in art and learning, probably accounts for the lack of scientific and philosophical advance during the long period of Roman rule.

In the medieval period there was an enormous amount of attention given to ecclesiastical institutions, with consequent elaboration of technique in church organization and administration, the development of ecclesiastical orders, the complication of rites and rituals, and the construction of churches and cathedrals. State, family, law, morals, literature, and learning were all deeply affected by this overweening authority of other-worldly interests. These same overpowering interests controlled also the expression of man's æsthetic nature in music, drama, poetry, architecture, sculpture, and painting. In our own day these interests have greatly subsided. The "run of attention" is now toward a combination of scientific research with industrial and business organization. We, consequently, see the devotion of huge endowments to education and to the construction of laboratories and institutions of research; we see the flowering of schools of finance and business organization, and numerous similar developments. Big Business is to our age what the Church was to medieval Europe.

Likewise, invention is relatively easier in an advanced state of arts and sciences than in a primitive state. This is partly because the very homogeneity of primitive conditions fails to furnish either the suggestions, or the stimuli, to inventive minds. It is more particularly due to the fact that small but very numerous improvements are easily made when the cultural acquisition has become highly diversified. Thus it is found that a very large proportion of the improvements in factory machinery and technique are now suggested by the workers. The complex division of labor, or intensive specialization of activity and interest, centers the attention of each worker on a narrow range of apparatus and processes. He can, therefore, often suggest slight im-

provements here and there, whereas it would be utterly impossible for him to devise any of the fundamental machines or techniques. Likewise, in scientific research, even ordinary graduate students can do more or less routine types of data collection and analysis and thus add a bit here and there to the store of human knowledge. These bits are utilized by more able minds for making more considerable improvements or additions, and occasionally there occurs what Pearson has called an "architectonic genius," who is able to take all the varied accumulations of a generation of research and invention and combine them into a great invention or a new scientific law.

Inventions of all sorts are subject to selective action by the existing social scheme. Kroeber¹⁸ notes that Mendel's great discoveries were scarcely noted by his contemporaries; but in 1900, within a few weeks of each other, three different biologists independently rediscovered Mendel's paper. The time had arrived in the development of biological research when Mendel's laws could be understood and appreciated. Had his paper not been found, his laws would soon have been formulated any way; at least so it appears.

Finally, emphasis should be given the fact that the rate of social innovations is greatly increased when the social tradition welcomes rather than opposes change. Our own age has shown, for the first time, the possibility of organizing educational and research facilities so as to increase the flow of new discoveries and devices. This is true particularly of the fields of physical science, mechanical invention, business, and medicine. These activities result largely from our interest in efficiency. It would seem possible, in a more enlightened age, to provide equal facilities for research in psychology, education, and the social sciences. When that is done, and the results eagerly awaited, we shall have new streams of improvements of great value for human happiness.

5. *Criticism.* It is obvious from the foregoing that the kind and rate of social change depend very profoundly on the general state of culture itself. There is much to be said for the view that inventions are literally produced by the social medium in which they appear. Certain it is that any social change can be understood only in the light of its social context. There is thus intro-

¹⁸ Essay cited.

duced the possibility of studying the evolution of inventions, and hence of civilizations, entirely apart from the study of individual inventors, leaders, or other types of great men. It must be remembered, however, that *culture exists only in human minds, functions through them, and grows only in consequence of their activities*. Only a very small fraction of any population makes innovations of sufficient importance to become new folkways. Since culture functions through minds, its development is limited by the potentialities of the minds affected by it. Consequently, the quality of the human minds upon which cultural suggestions are impinging has an important bearing on the effects of the suggestions themselves. They may, or they may not, produce any results. There is no ground for supposing that the Negro will, under the most favorable conditions, make additions to the more abstract and complex aspects of our present culture. There is equally little doubt that he is making other contributions in line with his predispositions and aptitudes. We would seem warranted also in supposing that what is called racial temperament will have something to do with the direction which the cultural trend, or the "run of attention," takes in different groups.

In the second place, there is considerable doubt whether the number of men of first rate ability is the same in the same nation at different times, to say nothing of being the same in different groups. If we could be sure that their number is always the same in a given population, we could eliminate them as a special factor in invention. Inventions would still be made through them, but they would be made at rates determined solely by the social medium itself. Very probably, however, the number of highly talented persons varies from generation to generation. Men of genius are rare biological combinations. They seem to appear with the irregularity of chance events. They sometimes appear in galaxies, and thus give special brilliancy to particular periods. It seems difficult to believe that the ages of Elizabeth and of Louis XIV, for example, can be explained solely by the social currents of the day. It is even more difficult to believe that the genius of a Shakespeare is always latent in every community, needing only proper social stimulation to produce unrivaled plays. The same may be said of such rare abilities as those manifested by Aristotle, Newton, Napoleon, and Wagner. These men, if born in another age, would doubtless have produced different

inventions from what they did; but such abilities seem rare and far between. Not only so, but when they appear, they produce results which derive their quality in part from the special qualities of the creating genius. Moreover, so powerful is their influence, that they deeply affect the further development of the culture to which they have contributed.

Of course, as we have already noted, individual abilities grade through many degrees. Consequently, in the absence of genius of the first order, there may be present in the group genius of the second order. In this case, the solutions of problems are less facile, they are more clumsy, less complete, and less effective. The rate of social change is thus conditioned in part by the number and grade of superior men. We see this, very clearly and on a small scale, in the rise and fall of corporations and other voluntary associations, in consequence of the presence or absence of vigorous and brainy leadership. It is not impossible that great civilizations likewise owe their rise and fall, in part, to the quality of the racial abilities, and the variable numbers of superior men available for creative leadership. Such considerations give point to the widespread belief that western nations are now stimulating and utilizing their gifted strains to an unprecedented degree, but at the same time destroying them through reproductive selection. In that case, the social superstructure of our culture may become so elaborate and intricate that it will collapse of its own weight.

Conclusion. We may at this point briefly summarize the discussion of theories. 1. While we reject the simple monotypical theory, we, nevertheless, find the idea of stages worth preserving. The evolutionary view is sound in conceiving culture to develop from simple beginnings to complex forms. The same general factors are operative in all social development. They result not only in the cultural framework, but in parallel developments. We shall see in a later chapter that all areas of high civilization have passed through certain broadly similar stages, while it is generally agreed that the series, stone, bronze, and iron, furnishes a key to social evolution everywhere. It seems probable that we shall discover other turning points in social history. There are broad similarities in successive phases of the great waves of culture represented by the civilizations of Egypt, Babylonia, Greece, and Rome. Comte's generalization of three stages, Theological, Metaphysical, and Positive, is useful, but tells us all too little.

Spengler's recent attempt to systematize the successive stages in the great cyclical movements of civilization is clouded in metaphysical obscurities. But this problem may ultimately be clarified, just as the economists have schematized the phases of the business cycle.

2. We see that the three ways in which culture grows is through diffusion, independent origins, and the internal elaboration and adjustment of ideas to the existing cultural context. Our own culture, for example, has derived most, if not all, its fundamental patterns from the great stream of development running back through the ancient civilizations. Paper, the printing press, the compass, and gunpowder came from the Chinese. We have derived a number of traits from the Indians. But we have, in this country, made new combinations of the older elements, added our own creations, and constructed of the whole a social system which never existed before.

3. Culture is in many respects the most important factor in its own further evolution. This is particularly true, if we limit our view to the changes which occur in a given area between one generation and its successor. It is thus both possible and profitable to study the evolution of the superorganic entirely apart from its physical or organic basis.

4. The complete understanding of the culture of any area, however, must take account of the influence of the habitat in giving a certain direction to human thought and activities. The logic of materials and situations affects the inventions of any time and place. Just as the whole social life of England has been deeply affected by its island position and its abundance of good coal, so the whole life of France and Italy has been constantly influenced by the lack of coal and iron among their natural resources.

5. Likewise, the course of civilization seems to be affected by the intelligence level and temperament of its population. It cannot be assumed that the social history of any area would have been the same, had it been inhabited by an entirely different combination of races. Moreover, it is unwarranted to assume that the quality of a given population remains exactly the same over extended periods of time. It does, in fact, undergo constant change, especially in highly dynamic societies, in consequence of differential birth and death rates and other selective processes studied in previous chapters.

SOCIAL RÔLE OF CERTAIN CULTURAL FACTORS

Territory. Spencer pointed out that nature and man are respectively the original external and the original internal factors in social evolution. Since culture represents the accumulated means whereby man adapts himself to his habitat, it is evident that the latter is an important factor in the elaboration of such means. Its rôle has already been discussed in Chapter V. It never ceases to constitute a limiting set of conditions. It affects not only the development of economic institutions, but also æsthetic, moral, religious, and political ideas and institutions. In our own times nothing has affected social change so much as the increasing knowledge of nature, her resources and processes. The progress of the last century or two has been based upon a more perfect adaptation to, and utilization of, the territorial basis of social life.

These facts become of fresh importance in connection with the foregoing theory of cultural determinism. As shown in Chapter V, the state of culture determines, to a very large extent, how a given territory shall be exploited; but this does not nullify the equally important observation, that the nature of the habitat enters as an integral factor in the cultural development taking place therein.

Population. There are two interactions of population and cultural evolution, first, as regards quantity, and, secondly, as regards quality. There is a direct relation between the numbers of persons on a given territory and the stage of culture. Primitive peoples are thinly scattered over their territory and an increase in their numbers is not possible in the absence of an improvement in their arts of food-getting. But, as we have seen in our study of the Malthusian Doctrine, an increase directly follows any such improvement. Nor is this all, for the increase in population reacts in many ways upon further cultural evolution. During periods of cultural advance, the increase in population becomes in itself a factor in social dynamics. It serves to speed up the progressive tendencies by increasing the labor supply, furnishing a greater number of superior men, intensifying social consciousness, and elevating the strength of the group in both economic and military competition. Growth of population increases the opportunities for interstimulation, the attrition of

mind on mind, which constitutes an important source of social energy and suggestion. It also provides a basis for an increasing division of labor and the specialization of effort, from which come increased efficiency and inventiveness. Thus an improvement in the practical arts permits an increase in population; this, in turn, results in an improvement of the arts. If the habitat is favorable, this interaction continues until a high civilization is reached. All areas of high civilization have been areas of relatively dense population.

We need not repeat what has been said regarding racial capacity and temperament. But we may add that there is a reciprocal relation between the number of talented men who will reveal themselves and the state of culture. As culture becomes more complex and more dynamic, it furnishes stimulation and opportunity to an increasing variety of talent. The increase of means of communication and other agencies of social integration brings it about that a larger proportion of the latent ability of the population is reached and set to work. Periods of high civilization are thus periods of maximum utilization of the mental resources of the population, though they tend to burn out the gifted strains.

Language and Communication. As Professor C. H. Judd says,¹⁹ "language is the fundamental social institution." The basis of language is in man's remarkable vocal apparatus, his ability to observe and reproduce a wide range of articulate sounds, his tendency to communicate, due to his associative proclivities, and his high intelligence. The *origins* of language are lost in the mystery of man's sub-human existence. He must have possessed and expressed the rudiments of language from his earliest origin. These rudiments consist of gesture, facial grimace, the vocal expressions of various emotions by ejaculations, weeping, moaning, laughing, and humming. But all these are found among animals, notably the higher apes. And yet no animal rises to the level of language.

Something extremely important must be added, and that something is the conventionalization of a particular combination of sounds as the symbol for a particular object, condition, or action. How words originate may often be observed among children or even adults. The human larynx, throat, tongue, teeth, palate, and lips constitute an almost inexhaustible reservoir of sound

¹⁹ *The Psychology of Social Institutions*, The Macmillan Co., 1926, Chap. x.

combinations. One of these is applied to an object by one person and repeated by another. It thereafter serves as a word symbol for these and others who imitate them. In this process chance plays an important rôle, so that the same thing has a different name in every language, or the same sound (or later, spelling) may mean quite different things in different (or even the same) languages. It is only a step from the occasional naming of things more or less accidentally to the idea of creating word symbols for all necessary purposes. Even children have been known to make a game of language, resulting in the development of fairly elaborate vocabularies. We can well imagine primitive man occasionally engaged in the conscious activity of naming new things and activities. Language, no doubt, grew more or less spontaneously, and yet the complexity and elaboration of many tongues show that they have been the objects of a great deal of analytical thought.

When we say that the social rôle of language is to serve as a medium of communication, we scarcely begin to express its full significance. It is the essential basis of mutual understanding and associated effort. In its absence group solidarity would have remained at the herd level, and society as a going concern would be impossible. We should have only very small familial groups thinly scattered about and living in an atmosphere of mutual suspicion.

Language is the chief agency in the socialization of the individual. As Professor Allport ²⁰ puts it, "Language is the major form of social stimulation." The child acquires it slowly and in consequence of extensive psychological conditioning. But he acquires it under various social controls, and, as he does so, he imbibes with it the most important part of his social heritage. Thus common language carries with it a similarity of thought and feeling; it cultivates that "consciousness of kind" out of which rises authentic feelings of membership in the social group. Words are only conventionalized symbols and seem to be mere jumbles of sounds to those who do not understand their social meaning. But those whose heritage they are may be thrilled or deeply moved even by common words simply spoken. Language is the chief vehicle of education, whether formal as in our own day, or informal as among nature peoples. Moreover, it is the chief

²⁰ Floyd Allport, *Social Psychology*, Houghton Mifflin Co., 1924, p. 196.

medium of thought. Whether or not we have ideas apart from words, closely logical or analytical thought would be impossible without the use of words. They are the only medium for the expression of shades of meaning and nuances of thought. There is little doubt that an increase of vocabulary increases the range of thought, but we all know persons who use words freely who have little power of thinking.

By virtue of its socializing effects, language becomes the chief promoter of group consciousness or psychic solidarity. The very fact of speaking a common language gives a certain similarity to thoughts and feelings and their expression. "The learning of a word is a process of socializing the individual and making his conscious world like that of others who use the same language."²¹ Language is the storehouse of the social tradition. For eons of time the spoken word was almost the sole medium through which the child acquired the myths, legends, and moral and religious

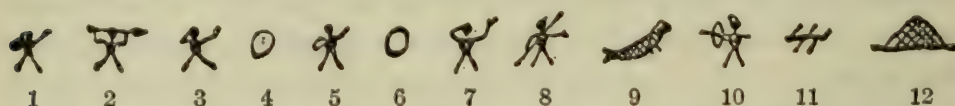


FIG. 52.—An example of pictographic writing. An Eskimo's story of a journey engraved on ivory by a stone graver. 1, shows the author pointing to himself with his right hand and indicating direction with his left; 2, in a boat; 3, sleeps (hand under head) one night (left hand shows one finger); 4, an inhabited island; 5, going farther; 6, arrives at an uninhabited island; 7, passes two nights there; 8, hunts with harpoon; 9, a seal; 10, hunts with bow; 11, returns in canoe with another person; 12, at the hut of the camp. (After Deniker.)

ideas of his race. Both spoken and written language embalm and make sacred the glorious pages of a race's or a nation's history, its cherished heroes, and proud achievements. By their use, poets, story-tellers, and historians illumine the past and arouse zeal and devotion in youthful minds. (Figure 52.)

Because it thus occupies so central a place in the creation of the group mind, the consciousness of a common origin and a common destiny, language becomes the most prized group possession. Conquests have repeatedly shown that subject peoples will surrender all other features of their social heritage before giving up their language. In this, religion occupies a place of nearly equal importance, because it also embodies the forces making for social solidarity. Language survives because it is imbibed in infancy,

²¹ Judd, *op. cit.*, p. 210.

largely through the intimate contacts of mother and child, which alien political authority cannot reach. So long as it survives it inevitably carries the essence of group tradition and the vitalizing elements of group feelings and values. The reconstruction of Europe, following the recent war, when numerous subject nationalities were restored to independent statehood, shows that, so long as a conquered group preserves its language, it preserves the chief means for the quick reconstruction of its national life.

As the medium of common thought and communication, language is the chief instrument of common action. Those in whom a consciousness of kind has been produced tend to give like responses to the same word stimuli. Thus "concerted volition," or the combination of effort for the achievement of common ends,²² rests squarely on language and communication. Language is the chief instrument for the creation of common purposes, because it is the essential medium for common deliberation. It is essential to common action, because only through it can the functions of leaders and followers and every specialized activity be fitted together toward a common end. The extent of group coöperation, both as regards geographical area and as regards the complexity or intricacy of coördination among relatively independent individuals, is limited by the development of language and other means of communication. The lack of means for the quick and clear transmission of thought to distant persons is one of the reasons why primitive hordes were always relatively small in size, why their group activities were little differentiated from person to person, and why group integration or solidarity was on a low plane.

The evolution of language kept pace with the evolution of culture in every sphere, thus making possible the communication of an increasing number of ideas and the coördination of an increasing variety of activities. It must be remembered that until our own day it was not customary for the masses of the population to read daily newspapers and other media for the transmission of thought. There is no more marvelous illustration of man's culture-producing capacity than the manner in which the highly complicated rituals, the elaborate myths, and all the details of family rights and duties, social relations, governmental and legal powers, rights and duties were transmitted

²² F. H. Giddings, *Inductive Sociology*, The Macmillan Co., 1901, Chap. iv.

from generation to generation, and carried out with notable practical efficiency in the days before the invention of printing, or before the masses of men had learned to read or write. Civilization was then literally carried about in the brains of men, transmitted by the spoken word, and embodied, partly to be sure in tools and material products, but primarily in song, story, myth, and ritual.

It is for this reason that the expansion of states depends largely on the development of means of communication. Plato and Aristotle thought that democracy would prove unworkable in territories much larger than the city state. They believed it essential for the citizens to assemble in mass meeting in order to create public opinion and arrive at common decisions. Rome sought to bind all parts of her empire by marvelous roads and a postal service; and Charlemagne did somewhat the same. But it remained for the development of the printing press, the newspaper, the post-office, the telephone, and the telegraph to so widen the scope of democratic deliberation, that whole continents can be made to think and feel almost as one man. In recent times these agencies have accentuated the growth of nationalism by unifying custom and belief within national boundaries. Now the radio promises to link all nations by invisible bonds and to aid greatly in producing that mutual understanding out of which world coöperation and organization will come. To these ends a universal language would contribute greatly.

Scientific Knowledge and the Industrial Arts. We have seen that the primary needs of man are for food, clothing, and shelter. We have also seen that these give rise to his economic activities and to his efforts to control his material environment. If we may assume that man arose in a relatively agreeable climate, his economic activities were at first directed entirely to the acquisition of food. Anthropological research shows that such tribes as the Australian aborigines, the Veddahs of Ceylon, and other very primitive peoples, devote nearly the whole of their lives to a continual search for things to eat. Some of them pass their entire lives in the open, while others build for themselves rude wind-breaks of very temporary structure. Clothing is not essential as a protection against the elements. It is even assumed by certain anthropologists that the wearing of clothing began as a means of satisfying the desire for personal adornment, as a means

of acquiring social prestige. Among many peoples nakedness arouses no sense of shame. Even where certain objects of clothing are required for decorum's sake, a conventional covering for the back of the head or a string around the neck, may be considered more essential than a loin-cloth. As man spread into cooler areas, he developed forms of clothing for bodily protection and the arts of their manufacture. The use of the skins of animals long preceded the weaving of woolen or linen garments, while cotton manufacture is a development of an even later period. In the same manner there evolved a tradition of house building, both as to form and other architectural features, and as to materials and methods of workmanship.

More important, however, in the long run, than either clothing and shelter was the gradual evolution of an increasing knowledge of plants and animals which enabled man to increase his food supply. As we have seen, there is no more important sociological generalization than that the size of the group is an essential determiner of cultural possibilities; but, on the other hand, the state of industrial technique limits the size of the group. The size of the group rests squarely upon the quantity and regularity of the food supply. Consequently, the development of agriculture and the domestication of animals represent discoveries and inventions of the utmost significance for the development of every feature of man's cultural life.

With the mastery of the food supply, moreover, economic activities may further differentiate, invention may be stimulated and an ever-increasing variety of natural resources may be exploited for the satisfaction of the infinitely expansible wants of man. Even in the most advanced societies, food, clothing, and shelter continue to constitute by all odds the most important elements among all of man's economic activities. With the increasing mastery of his environment, which the slow accumulation of his knowledge of nature makes possible, man not only steadily raises his standards of food, clothing, and shelter, but he also adds at an ever-accelerating rate to the satisfaction of his æsthetic, religious, and recreational demands. In the course of these marvelous advances in the practical arts, the relative importance of the primary motives undergoes some change. For the masses, the drive to achievement is still elemental need; for the well-to-do, it is the desire for social esteem and prestige; with many business

organizers, it is a desire for successful achievement; with others, it is the closely related desire for power. At bottom, all these except the first, are due to cravings of the ego for new experience and recognition.

But there are other traits involved in industrial evolution. They include the following: an insatiable curiosity, a tendency to manipulate and to contrive, and creative imagination. It is in consequence of them that man may be called the only tool-making animal. He is more than a tool-user; he is a deviser and constructor of tools; he has the imagination to conceive them and the skill to make them; and tools are at the basis of all human advancement above the animal level. The great inventions, such as the bow and arrow, pottery, fire-making appliances, the domestication of animals, instruments for weaving, for pottery making, and for the cultivation of the soil, each and all lifted the social groups possessing them to new and higher levels of subsistence and security. They resulted in an increase of population, favored an increased division of labor, and otherwise reinforced the factors of social change. In our own day the invention of the steam engine, and the resulting revolution in transportation by land and sea and in the manufacture of goods, have trebled the population of the western world and, together with the tools and machines that have followed, bid fair to revolutionize the cultures of all peoples everywhere.

Genetic Groups and Mores. Of coördinate importance with the material culture required for group sustenance are those genetic institutions and activities requisite for the reproduction and rearing of offspring. Here again we find the essential basis for the cultural developments in man's internal drives and his physiological differentiation. In them are rooted all the phenomena of courtship and love making, which are widely manifested in the animal world, but among men are surrounded with numerous taboos and regulations designed to control instinctive tendencies according to socially approved patterns of decorum and decency. The very vigor and poignancy of sex experiences would also have resulted in surrounding them with much of mystery and magic. As far back as it is possible to penetrate in human history, or as low in the scale of social evolution as the ethnologist can go, it appears that the relations of the sexes are subject to elaborate regulation having back of it the most powerful social

sanctions that law, religion, morals, and unified opinion can devise. Apparently, man saw very early in his evolution the necessity of regularizing the relations of the sexes and of harnessing the powerful sex drive to constructive social purposes.

It is because of the naturalness and inevitability of the mated pair that certain writers have looked upon it, together with the immediate offspring, as the only purely natural, that is zoölogical, human group. This may be true, if terms are strictly defined. But we may be sure that this simple group very early became more or less complicated, though it still retained a genetic basis. Upon marriage children would remain in the group. There would result an aggregation larger than the individual family, a loosely organized horde of both sexes and all ages. The old Aristotelian doctrine that the state is an outgrowth of the family is borne out by ethnological research. The earliest basis of social organization was kinship.

The one all-essential function of any and every sort of family arrangement is to provide for both the procreation and the rearing of a sufficient number of offspring to insure the maintenance of the population. Because it is concerned with the rearing of the future members of the group, the family is not merely the center about which the economic activities of primitive groups are organized, but an important agency in the transmission of that immaterial culture represented by morals, manners, and religion. Through it the primary wants of food, clothing, shelter, and sex are satisfied, the social tradition perpetuated, and youth prepared for mature responsibilities. Moreover, it is in the larger genetic aggregation that we find the roots of religious, moral, juridical, and political mores.

Cultural Contacts and Group Crises. Nearly every form of culture tends to become static. If we remember that culture is the medium whereby man adjusts himself to his environment, we see that, once man has worked out a tolerable adjustment, he tends to surround the behavior patterns thus developed with qualities of sacredness which immunize them against change. This immunity was called by a famous English political scientist, Walter Bagehot, "the cake of custom." With the passage of time the cake of custom tends to thicken, and cultural modes become more and more stereotyped. There is, therefore, in culture no inherent tendency either to change or to progress. If we ask

ourselves, then, why it is that man has in certain parts of the world moved forward from the stone cultures through the bronze and iron to the present age, whereas other groups have remained at much lower levels, we shall find the most significant answer in the fact of group contacts. Apparently, the only way in which the thickening cake of custom can be broken and the social group given a new impetus to social change is through the social contacts with other groups resulting from war, migration, trade, travel, and communication, or by some kind of intra-group crisis, such as famine or civil war.

Of all the modes of producing cultural interstimulation between groups, war has played a much more important rôle, at least up to very recent times, than any of the others. In one sense, war constitutes a conflict of cultures. If it results in conquest, it produces an amalgamation of cultures. Such an amalgamation has been called the "cross-fertilization of cultures," indicating that it tends to give rise to new phases of cultural evolution. War serves as the most powerful psychic stimulation to which a human group can be subjected. It forces the group to reconsider the efficiency of its stereotyped ways of doing things. It thus serves as a fruitful stimulant of innovation. It is certainly true that a very great number of the most important advances in the utilization of the material environment have resulted from military exigencies. War thus effectively shatters the cake of custom, elevates to extraordinary levels the inventive capacities of the human mind, and through the powerful suggestions of contrasted cultural modes gives rise to a new amalgamation of folkways. War has thus, in the past, often been a valuable factor in cultural advancement. It would seem to be true, however, that war becomes wasteful and destructive in all advanced civilizations. This applies to Greece, Rome, and modern Europe. In the earlier stages of an ascending wave of culture, war serves the inestimable function of widening the area of peace. It thus lays the basis for an expansion of trade on the basis of a territorial division of labor. Once the arts of peace become highly developed, wealth expands, and the higher cultural pursuits, science and art, begin to flourish. Thereafter war seems to be more destructive than constructive, though it may appear necessary in national defense.

The migrations of peoples produce similar effects but with a much less powerful psychic stimulation. Migrants tend to carry

with them their traditional folkways. As they come as aliens into the midst of another culture, they supply fresh suggestions out of which may come modifications and improvements of existing cultural modes. Likewise trade, or contact through an exchange of goods, results in a multiplication of suggestions and the stimulation of invention.

It would thus appear that the most important single condition that makes a culture static is geographical isolation, whereas the condition that makes culture dynamic is one of varied and numerous cultural contacts. Of this there are abundant illustrations. The social life of isolated communities in the coves of the Appalachian highlands or of the Ozark mountains is to-day very similar to that of their ancestors of 1750. Whether we view their culture from the standpoint of speech, religion, morals, industrial arts and technique, house building and furnishing, family mores, or what not, we see antique forms. As we move from such communities toward great metropolitan centers, we meet with an increasing dynamic quality in the social life as the community has increasing facilities of contact with its neighbors and the world at large through the railway, the newspaper, the telegraph, and the telephone.

At the same time, a wholly isolated society would be driven to some alterations of its cultural modes in the presence of famine, pestilence, or civil strife. If it were on a low level of cultural advancement, it might very well lack the resources in knowledge to enable it to meet the emergency. In fact, it might, by the very force of its own mores, be driven to reliance on magical and religious forces, and thus sink deeper into the ignorance and superstition which are the chief sources of human degradation. So dependent is every group on the stimulus and suggestion of new patterns of behavior in order to change or improve its own, that no primitive group could be expected to lift itself very far above its traditional level in the absence of inter-group contacts.

Cumulative Nature of Culture. 1. *Knowledge Chief Basis of Cultural Accumulation.* It is obvious that culture grows by more or less steady accumulation. What is new in invention or discovery is added to what is already known or possessed. This is illustrated by the present uses of such a culture trait as the wheel as compared with a century ago, or its uses a century ago as compared with a thousand years earlier. It is illustrated again

by the rapid expansion of electrical appliances in recent decades. But while the cumulative nature of material culture is quite apparent, immaterial culture is likewise cumulative. In fact, it may be said with considerable pertinency that this cumulative characteristic applies particularly to the immaterial aspects of culture, for, in last analysis, all cultural improvements rest upon ideas. No age illustrates this better than our own, for the rapid growth of the natural sciences has made possible the most amazing material progress in human history. An increase of knowledge is at the basis of improvements in the industrial arts, whereby new and better kinds and larger quantities of material goods are produced. And, as has been shown, an advance in scientific knowledge modifies every other feature of the coexisting culture, even its æsthetic activities.

2. *Cultural Losses and Disappearances.* In a broad general way we may say that the outstanding improvements in knowledge and techniques, once achieved, have seldom been lost. But there is involved in this statement recognition of the fact that an improved technique will displace an old one. For example, the art of making stone implements has disappeared among us, because bronze, iron, and steel axes and swords are more efficient than stone ones. But there is no break in cultural continuity between the first stone implement and the latest ones made of steel. Another illustration is the disappearance of the skilled handicrafts that flourished just before the Industrial Revolution. Only decrepit relics of them still remain here and there, furtively, amidst the astounding productivity of the machine age. Here is some individual loss, but much social gain. There is thus a constant process of *trait substitution*. In consequence of it, man has moved, at first very slowly, and then more rapidly, from Eolithic and Paleolithic into the Neolithic stages, and then into the Bronze and Iron ages, and now into an age of steel, electricity, and machinery.

Moreover, we must not overlook the fact that cultural traits may be entirely lost. There are some interesting cases of such lost techniques. The art of embalming as practiced by the Egyptians, and certain features of Venetian glass manufacture have been lost, the latter within quite recent times. Such losses may be accounted for by migration to new habitats where essential materials for old traits are lacking; or by group crises which result in more or less destruction or substitution of traits.

Another important fact is that periods of cultural advance have alternated with periods of cultural decay. Civilization after civilization has risen and declined. This is clearly observable in the evolution of western culture. While each phase of this stream of culture may have derived more or less directly from the preceding phase, there was much intermediate recession and later phases did not always equal the preceding in all respects. The Greeks excelled the Romans in art, literature, and philosophy. Moreover, whole cultures may be lost, or nearly so, as witness the vanished glories of Yucatan and of the ancient Incas of Peru.

3. *Variable Rates of Accumulation.* It is somewhat difficult for people living in such a highly dynamic age as our own, in which striking inventions occur almost yearly, if not weekly, to visualize the beginnings of the acquisition of culture and the slow, painful steps which marked its early development. In its beginnings, it was as difficult as the first steps of a child learning to walk. No doubt walking is also an expression of the internal drives and mechanisms of the human organism. There are cases on record of children who have suddenly ceased crawling and begun to walk. Nevertheless, it takes a considerable amount of practice to develop the essential correlation of nerve and muscle which results in an easy habit. So in the evolution of culture. It would appear that for almost countless generations, possibly for hundreds of thousands of years, man lived so close to a purely animal plane that his cultural acquisition left no clearly discernible marks on the areas of his habitation. The so-called eoliths, or earliest stone implements, are extremely crude and inefficient, but nevertheless they cover most of the whole period of man's existence. The Paleolithic culture, which may be assumed to have begun one or two hundred thousand years ago, extended on down to within ten or fifteen thousand years of the present. Moreover, even the Neolithic culture covered the major portion of this latter period.

In other words, only a small fraction of man's total history has been lived in stages of culture of relatively high advancement. When we say, therefore, that a culture is cumulative, we must allow for the fact that the earlier stages of accumulation were extremely slow. The rate of accumulation increases with the advancement of culture. This is primarily due to the fact that, with

the advancement of culture, means for profiting by experience and for perpetuating and transmitting these benefits themselves become important parts of the culture itself. Until a very high state of advancement is reached, all improvements in culture result, in part, from a purely random activity, from chance discoveries, and, in part, from the more or less conscious, trial and error, activities of man's curiosity. While these modes of cultural improvement are not lost, we have added in our own day the more highly efficient technique of scientific research. This is characterized by a systematic organization of exploration and discovery in the light of experience, tested technique, and highly elaborated and consciously designed instruments. As over against either chance discovery or the purely trial and error activities of the alchemist, the carefully devised experimental activities of the modern researcher have the inestimable advantages of economy of time and effort, control of conditions, and a pointed and purposeful direction of effort toward a more or less clearly visualized goal. There results a constant stream of scientific discoveries and of mechanical inventions which gives to cultural change not only an unprecedented speed but also a certain directness and clarity in the satisfaction of consciously felt wants.

SOCIAL PROGRESS, STAGNATION, AND RETROGRESSION

The Deterministic View. 1. *No Inherent Tendency to Progress.* As indicated above, cultural evolution moves at varying rates. In any given area, it may move forward rapidly, stand still for many generations, or regress more or less sharply and even disappear. This shows that man possesses no inherent tendency to progress. This is true both biologically and culturally. Racial quality seems to rise and fall over long cycles, and so does culture. There is doubtless some connection between the two, in a broad way, but the factors of social change are so complex that there may be many progressive changes in social organization and life conditions even while the racial quality is on the decline. This seems to be the case now with European civilization, at least as regards the most advanced countries. In any case, there are various other factors affecting the cultural ups and downs. Some of these are geographical and others are psychological and cultural. But thus far there is a wide difference of opinion as to just what psycho-social conditions bring about a wave of very

brilliant cultural achievement and what account for the subsequent decline.

Every social philosopher views the matter from the angle of his specialty. One says the vital agent is religion; another, morality; still another, government. While one explains the decline of Rome, for example, as due to the spread of religious indifference, others attribute it to the decline of virtue and domestic morality with accompanying increase in sexual vice and profligacy, or, perhaps, to the weakness and corruption of government. The fact is that our ignorance is nearly abysmal with respect to this question. We know that periods of notable brilliancy in the arts are likely to be periods of considerable vice, as judged by orthodox standards; they are likely to be periods of much free-thinking and decline of simple faith and piety; they are usually accompanied by strong governments, but sometimes not. In view of these considerations, we may be very skeptical regarding such expressions as "man's inherent tendency to progress," "the vital principle of betterment," "the progressive force," and similar phrases which imply that society inevitably moves from a given social state to a better one.

2. *Cultural Evolution Natural, Not Artificial.* We are subject to the constant illusion of creating and modifying our own social system. We have the feeling that we can make it over according to any plan we decide upon. The writings of Herbert Spencer, the great apostle of individualism, abound with illustrations of how men seek by legislation and other governmental activities to accomplish certain results, only to discover in the end that they have brought about unexpected, rather than expected, effects. Recent American prohibition legislation is an example of the difficulties of reconstructing a social order by the fiat of law. Another illustration is seen in our realization that the abler strains in the populations of western nations are dying out, together with our inability to prevent it. We are now engaged in an effort to solve the immigration problem, and our laws have caused social reactions in all parts of the world. Even in this country some results have been surprising, for immigration restriction is aiding in the dispersion of millions of Negroes from South to North, and is stimulating immigration from Mexico and the West Indies.

In other words, we talk much of progress and value it highly, but we seldom realize that we have no guarantee of its continuance.

We hardly know what we mean by it, though we may be sure different people mean different things. We have only faint notions of why it occurs at certain times in human history, or why it gives way to periods of decline and stagnation. We have, in fact, no assurance that we could maintain the conditions favorable to it, even if we knew just what we (*i. e.*, some of us) wanted and how we could attain it. There would be different goals cherished by different people and diverse plans of procedure; there would be opposition and unexpected difficulty; and when we thought we had attained our goal, we should probably find that we had arrived at the wrong place. The whole social system represents an infinitely tangled skein of causes and effects, acting and reacting one upon another at ever changing angles and in ever changing proportions. Their disentanglement and control is the supreme problem confronting the human mind.

Moreover, the fact that the mind is itself a part of the cultural stream greatly increases the difficulties of making society over into an artificial instead of a natural product. As brought out in the previous chapter and in this, we think and feel in terms of our own culture. Our reactions to the stimuli about us are so much a consequence of cultural conditioning, that our own culture shapes our ideals of the future and of the social millenium. We are thus so much a part of the stream of culture that it is extremely difficult to get outside it long enough to judge it objectively. Consequently, the state of culture at any moment shapes the hopes and aims of men according to its own standards and leads them to live in such ways as to bring about the next cultural state quite automatically.

It is much as though men were automatons manipulated by the social forces about them. No one of us has any control whatever over his hereditary endowment of intelligence, aptitude, and predisposition. Nor can we as individuals control our social environment during our formative years. Thus we arrive at maturity with habits of thought and action fitted to the cultural medium, and ready to respond in ways which represent the spirit of our own times. If we value progress and science and nationalism, it is largely because we were born here and not in Tibet or among the Eskimos. Thus the cultural stream flows on through one generation of minds after another. It shapes them to its own model, uses them for its own purposes, and flows on to the

next generation to repeat the same process. Consequently, all social change must be looked upon from a deterministic, natural-history viewpoint.

3. *Progress versus Social Evolution.* Many thinkers have held that progress is fundamentally either a matter of chance, or an illusion. It is contended that we do not have progress but only social evolution. Referring to our discussion in Chapter I, we see that the term evolution is so extremely comprehensive that it includes all change. The endless tendency of complex energies toward states of equilibrium gives rise to ceaseless change. In social life these energies are those of man, both individually and collectively conceived, and of physical nature. Their interaction and the infinitely varied cultural modes in which they result and through which they flow constitute the processes of social evolution. We have seen that this evolution is creative because it produces new social traits, or folkways, and institutions. But does it ever result in progress?

The answer depends on what is meant by progress, of which there may be many definitions. It should be obvious that mere change is not necessarily progress, though there are many persons who make this confusion. We may define it as *movement toward any human goal, or toward the achievement of any end set by man*. We make progress when we approach the completion or fulfilment of aims which we have established in advance. Our own society, for example, sets as one of its goals universal education. To this end we spend hundreds of millions of dollars annually for public education. Reduction in the percentage of illiterates represents progress toward this particular goal. Thus we have social evolution whichever way the general state of society moves, and we have progress in some respects whenever it moves toward the realization of any human aims or values. We usually find that progress in some respects is attended by retrogression in others, as is illustrated by the present disintegration of the family, while we are making rapid material progress and advancing the freedom of women. It is not probable that progress in all respects can be made at the same time, since there is sometimes a direct conflict in the ends men would like to attain, and very different ends are valued by different groups in the same society.

Criteria of Progress. 1. *Immaterial and Subjective.* Even when we ask whether our own society, universally considered

highly progressive, actually illustrates progress, and if so, in what respects, we meet with much diversity of opinion. By what criteria may we judge? Let us briefly contemplate a few.

It is repeatedly said that men everywhere seek happiness. This is doubtless the most devoutly cherished of all human aims. But it would be extremely difficult to prove that people of to-day are in general happier than were their great-grandparents. To be sure, we have more wealth, but we live less simply; we see and hear more, but we live under greater excitement and stress, we have fewer repressions and enjoy a more varied and complex set of stimuli, but we see all about us great masses of people living in poverty and with little opportunity to enjoy the fresh air and sunshine of the open country. Are we happier? How can we know, when we are under the necessity of judging the lives of our ancestors by our own standards? We think in terms of the automobile and the radio; they thought in terms of the one-horse chaise and the weekly newspaper. But who can say that the moving picture show and jazz dancing are sources of greater happiness than the spelling bee and the square dance? It would in fact be difficult to prove that the life of the average citizen of New York or Chicago in its daily round of activities is happier than that of an African savage.

Much the same difficulty applies to some other popular criteria. Has there been moral progress? We are fond of thinking so, but we should not be able to demonstrate it by any mass of objective data. The term "moral person" means one who conforms to the established mores of the day. A person may be moral by one code and immoral by another. We see this in our own day when we witness a certain disintegration of certain features of the established code, with the result that rival codes are being followed by different sets of persons. By moral progress, then, we cannot mean the tendency of people to conform more and more closely to a given code, but the tendency of the code itself to be improved. There will then be differences of opinion as to what tests should be applied to prove that one code is better than another.

If we consider some of the very widely recognized moral values, we see this at once. Such values include loyalty, honesty, justice, chastity, humanity, sense of duty and responsibility, and others. It is doubtful whether men are more loyal than they used to be,

though they are loyal to different things. Are they more honest? Or more just? Is the administration of justice fairer than it was a century ago? Is there less graft in public affairs and more probity than in the early days of the New England town meeting? Is there less or more chastity than among the Germans of the days of Tacitus? Does the increase in divorce during the past fifty years indicate moral decline or advancement? These and similar questions show how impossible it is to prove moral progress in particular respects, to say nothing of proving it in general. Even more difficult would it be to prove that man has undergone hereditary changes which make him inherently more honest, just, or humane.

2. *Material and Objective.* We do not deny that there may have been improvement in some immaterial and subjective respects. But we find them impossible as standards of measurement, because they are subjective rather than objective. It is impossible for us to judge the psychic satisfaction of cultural media with which we are not familiar. We know much better what produces pain and unhappiness, than what produces happiness. But whether we seek to measure the diminution of pain or the increase of happiness, it is best to do so in terms of the quantities of those measurable things which are acceptable as marks of advancement. We can find several such measures of social progress in: (a) the number of persons per unit of area; (b) the average length of life; and (c) the standard of living.

These are all of them evidences of the extent of man's control over the essential conditions of existence. If a given territory can be made to support more people, without reduction in the standard of life, it is evident that the material culture must have improved. If the standard of life is elevated and numbers also increased, we have double assurance that man has acquired a securer command over natural resources. An increase in the average length of life is evidence of improvement in health through improved foods and sanitation, and control over man's bacterial enemies. If at the same time there has been an elevation of the standard of living, as shown by more comfortable and sanitary homes, better clothing, improvement in quantity, variety, quality, and regularity of food supply, more leisure, and a greater variety of wholesome enjoyments, we may be sure that there has been progress toward many of the primary ends which man sets

before him. By these criteria western culture is now superior to what it was a century ago, and seems destined to be still higher in the near future. It ranks higher than that of any of the past, though it, like the cultures of Ancient Egypt, Assyria, Greece, and Rome, will probably reach an apex and then decline.

All these material criteria of progress may be summed up in one, namely, control over the physical environment. Since culture is always a form of adaptation to environment, these objective criteria signify that man has attained a more perfect adaptation to his habitat when he has brought natural forces and resources under increased control. Analysis will show that such progress rests upon increase in knowledge. Without that, any improvement becomes a matter of happy chance. Thus the progress of science, which itself rests largely upon improved instruments and technique, becomes the basic factor in that material advancement in which our civilization stands unrivalled, and scientific research becomes the principal agency for its continuance.

3. *Completeness of Criteria.* But are the evidences of material improvement sufficient? No doubt material advancement is of primary importance, because it constitutes an essential basis for nearly everything else. It is easy to show that the material culture reacts in manifold ways upon the immaterial. But it will be admitted that the finest fruits of any culture are to be found in its intellectual and æsthetic achievements. The glories of Greece stand undimmed by the passage of time, because they represent unequalled achievements in the creative activities of the mind in philosophy, drama, poetry, painting, and architecture. These achievements come late in a cultural cycle and seem to represent its efflorescence. They are preceded by the attainment of wealth and a leisure class of considerable proportions, and the slow refinement of taste and standards of judgment which result therefrom.

Some Conditions Favorable to Social Conservatism. 1. *Narrowness and Thinness of Culture.* It is universally agreed that every form of social tradition contains large elements of conservatism. Primitive groups are, as a rule, more conservative than advanced. Since the original elements of human nature may be assumed to be essentially the same among all societies, the primary elements of social conservatism must be found in

the social tradition itself. It is, therefore, of some interest to inquire what are those social conditions which result in opposition to change. We may note, in the first place, that primitive societies, or backward groups within an advanced civilization, are possessed of a cultural acquisition which is both *narrow* and *thin*, that is, sharply delimited both as to time and space, or knowledge of the past and of other peoples. It is narrow because it is necessarily handed down by word of mouth and, therefore, reaches back through not more than three or four generations of actual human experience. It is narrow, also, because it cannot take account of the experiences of other groups at other times and places. In an advanced society, this narrowness of the traditional base is overcome by the development of written language as a means of permanently recording past experiences, and of bringing under consideration the manners and customs of other peoples. This enormously widens the human outlook, giving an advanced social group a much larger mass of pertinent experience upon which to draw in formulating its policies for the solution of present problems. The primitive social tradition is also thin in that it rests upon a very superficial understanding of the resources and processes of nature and of the possibilities of social organization and human achievement. It has a smaller accumulation of wealth, and otherwise possesses a very tenuous hold upon existence.

2. *Sense of Security Amidst the Familiar.* The fact that primitive society rests very largely upon ignorance and superstition, whereas an advanced civilization has at its disposal an increasing body of tested knowledge, constitutes the primary cause of the relative conservatism of the one and the relative progressiveness of the other. Ignorance, whether individual or social, creates an attitude of fearfulness and timidity with reference to the strange or the unfamiliar. So powerfully do the forces of nature appeal to the imagination, when they are conceived in terms of magic and animistic superstitions, that once primitive man has worked out a more or less satisfactory adjustment to them, fear and timidity oppose any alteration of procedure. This same factor operates in all societies, even the most advanced. The isolated mountaineers of Kentucky and Tennessee look upon the behavior and ideas of their more civilized fellow citizens of the plains and river valleys as queer, or even immoral, reprehensible,

and dangerous. The church-going public looks upon the ways of the non-churched as sinful and certain to end in some calamitous fashion. Freethinkers are looked upon with a combination of fascination and horror by the average man. The wicked may flourish as the green bay tree, but the guardians of the public mind and welfare view them with apprehension, lest the entire social group atone for them by plague and suffering. The substantial citizen is completely satisfied with his world, and contemplates all proposals for thoroughgoing reform with a sickening fear. We all have a certain feeling of security and contentment amidst the familiar, and a degree of apprehension and hesitancy in the presence of the unfamiliar. Knowledge is the primary agent whereby these feelings of apprehension and hesitancy can be dispelled, while only an advanced state of scientific orientation can produce active adventuring into the fields of research and exploration.

3. *Smallness and Isolation of Groups.* We may also note that primitive societies are as a rule relatively small and relatively isolated. They thus contain within themselves a higher homogeneity of culture, which in itself means the absence of variable internal stimuli and suggestion, a uniformity of belief and opinion, that makes the customary ways the only approved ways. Such homogeneity of tradition not only breeds intolerance, but makes easy the social humiliation and punishment of innovators. One can find illustrations of these points by contrasting different sections and communities in this country. The isolated society also suffers from lack of frequent contacts with other peoples, thus again reducing the number and variety of cultural suggestions and stimuli. All of these conditions favor a considerable rigidity of social pattern throughout. They favor also an unusual authority and prestige on the part of the older men and women. It is these latter who carry within themselves the most complete embodiment of the wisdom of the ages.²³ Innovation is frowned upon because not in harmony with the traditions of the elders. This in itself constitutes an enormous social loss in that it deprives the social group of the greater mental versatility, the higher suggestibility, the keener curiosity, the readier sympathies, and the swifter inventiveness and originality of youthful minds.

²³ Goldenweiser, *op. cit.*, pp. 401 *et seq.*

Some Conditions Favorable to Social Progressiveness. 1.

Men of Genius. At the expense of tediousness and repetition, it seems advisable to inquire specifically what are those social conditions which favor the maintenance of a progressive culture. In the light of the previous paragraph, the most simple answer to this is, those conditions which favor the accumulation of knowledge. Regardless of what may theoretically be possible through man's moral or religious evolution, it seems correct to assert that no extensive or continued improvement of man's lot on the earth is possible in the absence of a constant improvement in the quantity of his knowledge of himself and the world in which he lives. The accumulation of knowledge rests in the first instance on man's curiosity and intelligence. The first and most essential condition then for the perpetuation of a progressive social medium is the presence in it of individuals gifted with an insatiable curiosity and distinctive powers of analysis and generalization. Such individuals result from both racial and cultural factors. Their natural gifts are inherited and can be produced by no other means. But these gifts must be cultivated and stimulated, and the products of their genius must be accepted. If, then, a high level of culture is to continue, there must be maintained (1) the quality of the race, (2) those social conditions which stimulate the creative faculties, and (3) a social tradition favorable to the acceptance and utilization of their products.

2. *Intellectual Freedom.* For these ends there is required an atmosphere of intellectual freedom and toleration for what is new, strange, or out of harmony with accepted opinions and beliefs. This atmosphere itself is a consequence of a considerable advancement of knowledge and the presence in the community of an unusual number of well-educated minds. Toleration is fundamentally based on a realization of the differences between what is known and what is only a matter of belief, or opinion. Only scientifically trained minds arrive at such a realization. Such a distinction cannot arise as a community possession until there have been numerous upsets of long-established and deeply cherished beliefs. But even after a tradition of freedom of thought has become established, many well-educated and highly intelligent persons are very likely to lose their toleration during social crises. It is just at such times that thought and its expression should be freest, in order that the wisest counsels may prevail.

But it is just at such times that emotions of fear compel a violent insistence on conformity to the familiar and customary. We see frequent illustrations in the way in which solid and substantial business elements in this country are set all agog by the mere mention of socialism or communism. In spite of our boasted regard for individual rights, it has not infrequently happened that nearly the whole force of public opinion and the strong arm of police departments and courts have been turned against puny agitators, whose mouthings became important only because they were suppressed through a violation of the constitutional guarantees of freedom of speech and press. Genuine and deeply ingrained tolerance is a consequence of the cultivation of skepticism regarding large elements of the social tradition of the past. Freedom of opinion has now become a fairly well-established part of our own tradition, but it is still far from inviolate, and every generation must be taught anew its essential importance for the continuance of a progressive society.

There is always danger, moreover, that this tradition may be overturned, because there is a rival tradition shared by a large part of the population. This conflict of traditions is typified in the struggle between Evolutionists and Anti-Evolutionists, or Fundamentalists and Modernists. If the general level of inherited abilities in the population were high enough so that all men were philosophers, then we might be certain to establish the tradition of intellectual freedom as a sacred part of our culture. As things stand, however, there is a more or less continuous struggle necessary to maintain this freedom, without which the cake of custom rapidly thickens so as to clog all change.

3. *Consciousness of Improvement.* Another important condition is attachment to the idea of progress itself. The American people especially are well imbued with the doctrine that whatever is progressive should be approved. This is the direct reverse of a primitive attitude. But by "progressive" is usually meant some device for saving labor, increasing speed, or making goods or money. The idea of progress applies also to scientific knowledge, because it is realized that our material advancement is based thereon. It is no exaggeration to say that, for the first time in history, great masses of people in this country and Europe have come to realize that the chief hope for the alleviation of suffering and the elevation of the standards of living lies in the ad-

vancement of science. These peoples are somewhat unique also in being accustomed to an improvement in their standards of life, as compared with those of their fathers. Among most peoples, material progress has been so slow that little or no change was expected. But many who react with spontaneous favor toward what they view as progressive in material affairs and the natural sciences, have not extended their idea of progress to the social sciences and the realms of morals, religion, economic organization, and political institutions. Nevertheless, our whole cultural atmosphere has been rendered more favorable to change through the fact that the idea of progress has become one of our cultural traits.

4. *The Open Road for Talent.* The democratic tradition is favorable to a dynamic social life in that it establishes and maintains conditions which permit the emergence of talented individuals regardless of their social rank at birth. The present educational system serves as a huge and roughly accurate sifting apparatus, whereby those of low mentality are early eliminated and forced into lowly pursuits and those of greater talent are drawn upward into the managerial and professional ranks. While there are many individual exceptions, this arrangement tends to make a more complete and adjusted utilization of the various kinds and grades of abilities present in the population than would a caste society which had no public school system. In its ideal efficiency, the democratic plan would raise every individual to the highest point in the occupational scale that his inherent abilities permitted. With suitable training at every level, such a plan would utilize the hereditary potentialities of the population to a maximum degree. It would seem that every great civilization has made some such extensive exploitation of its population resources. Talent of every type and grade is highly stimulated; the vast majority work at high pressure; social activity rises to a high level of intensity. There results a period of marvelous material prosperity, population increase, and cultural efflorescence. We in America are now in such a period, as indeed is western culture generally.

But there are doubtless certain dangers inherent in such a plan. There is always a danger of overspecialization in individual training and activity, in social organization, and in institution. Overspecialization destroys versatility and adaptability. For

the individual it means increased difficulty in readjustment when any invention or social change forces him out of his job. Similarly, outworn institutions too highly specialized to be remolded to fit new times become sources of social waste and friction.

Then there is the much greater danger, often referred to, that the democratic plan of exploiting the talents of a population may lead to its impoverishment. Advanced civilization is essentially a phenomenon of the city. During the period of efflorescence, talent is drawn to urban centers from far and near, and set to work at high pressure. Its fertility falls so sharply that the better strains fail to fully reproduce themselves, just at the time when the mass of cultural achievement and the complexity of social organization require an abundance of able men. The pace, therefore, necessarily slackens.

Present Culture Phase Not Permanent. It is a fallacy of popular thought to consider our own culture as permanently durable. The direct opposite is, of course, the case. It may be that some society may acquire such a vast store of knowledge that it will be able to solve with assurance all the problems involved in its continued prosperity. But we are a long way from such a state. Moreover, we must take into account the probability that, long before such a state can be attained, we may ignorantly have done so much damage to our physical resources that the accumulation of wealth will necessarily fall below the rate essential to continued improvement, and social decline set in. Civilization, like culture of any grade, is essentially an exploitation of the resources of the earth in the satisfaction of human desires. Our own is using up these stored resources at a rate never even dreamed of a few centuries ago. As we exhaust one resource after another, we may, through the advancement of science, especially chemistry, learn how to find substitutes. Or we may learn the lesson of conservation, as have European countries which have adopted far-seeing policies of forest utilization and preservation.

But we cannot be sure that we shall not see our own culture come to an apex and then surely pass into the inevitable decline. Spengler prophesies that what we call "Western" culture will be superseded before 2500 A. D. by "Russian." There can be no doubt that all civilizations of the past have reached a state of saturation, in the sense that they built up a more rapid utilization of the resources of their population and of their territory

than these would permanently support. They were compelled to hand on the torch to a less sophisticated people living in a newer and more virgin area. They might have saved themselves, however, if they had had the knowledge to find substitutes, or supplements, for their weakening resources. In like manner, we may say that our one most certain hope of an indefinite continuance of the progress of the last century is in the further acquisition, spread, and application of the fruits of scientific research. Perhaps what is now most needful is a perfection of the social sciences, economics, politics, ethics, and sociology, and their application to the better ordering of the conduct of both private and public affairs, and to the preservation of the hereditary resources of the population itself.

SUMMARY

We may summarize the main points of this chapter in the following propositions:

1. Culture is a distinctly human form of adaptation to habitat, made necessary by man's lack of adequate instinctive equipment.
2. It begins in the utilization of his mental and physical powers to satisfy his needs.
3. It grows in consequence of the continuous interaction of itself and the human minds in which it very largely exists.
4. It may be broken up into traits and complexes, which are diffused through more or less definite areas and combined in variable patterns.
5. Certain trait-complexes are, in some form or other, found in all cultures. These we have called the cultural framework.
6. Cultural similarities have definite causes, as do also cultural diversities, due to the variable ways in which the factors in cultural development combine.
7. The primary factors in cultural evolution are habitat, race or people, great men, invention, communication, growth of knowledge, the necessities of racial perpetuation, and cultural contacts and conflicts.
8. The newer theories of cultural evolution discount the older monotypical view, and emphasize the phenomena of diffusion, parallelism, and diversity.
9. Cultural evolution is natural, in that it is due to causes which can be discovered by study and analysis.

10. It is progressive when it moves toward the realization of goals set by man.

11. The subjective criteria of progress are illusive, but there are objective criteria which may be applied with considerable confidence.

12. Among the conditions most favorable to progress are the general level of popular intelligence expressing itself in a supply of men of genius, and a social tradition favorable to intellectual freedom, tolerance, and social experimentation.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. Give illustrations of the unity of the human mind by comparisons of the Chinese and American civilizations.

2. Is it possible to explain culture solely in terms of itself?

3. Compare the dominant trait-complexes of New York City and a village in the Ozarks.

4. Compare the culture patterns of an Old American community and French Canada.

5. How has Christianity as a religio-moral pattern changed through the centuries? Why?

6. What are the social conditions favoring rapid progress of the sciences? Of the social sciences?

7. What are the gains and losses attending the spread of western culture to all parts of the world?

8. What are the outstanding features of a culture cycle according to Spengler? Criticize his theory.

9. What arguments can be presented for the view that "progress is an illusion"?

10. Can a nation make progress in all directions at the same time?

11. Would you agree that periods of material prosperity precede periods of artistic productivity?

12. Judged by orthodox standards, have the brilliant periods in the history of the world, like the ages of Pericles, Elizabeth, and Louis XIV, been periods of moral strictness or leniency?

13. Does it not appear that the rise and fall of civilization is more or less inevitable?

14. What do you consider the most important conditions for the continuance of the present progress? How would you guarantee their maintenance?

15. Do you discover any great, far-off goal toward which social evolution is moving?

SUGGESTED READINGS

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- KROEBER: *Anthropology*, Chaps. 8, 9, and 11, pp. 194-240 and 263-292.
 LOWIE: *Culture and Ethnology*, Chap. 4, pp. 66-97.
 TOZZER: *Social Origins and Continuities*, pp. 1-34.
 WISSLER: *Man and Culture*, Chaps. 1, 2, and 3, pp. 1-45.

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CHAPTER X

SOCIETY AND ITS INSTITUTIONS

Another Transition. In the four preceding chapters we have made a survey of the primary factors operating in social life. In the four which follow this one we wish to study four aspects of the organization whereby a society solves the problems of its common life. We thus make a transition from the conditioning bases of social life to the forms of grouping and the folkways through which a unified group maintains and perpetuates itself. This brief chapter, like Chapter IV, is designed to facilitate the transition from one type of problem to another.

From the preceding chapters we may deduce in advance certain elementary but highly significant propositions regarding all societies. In the first place, they necessarily have a geographical basis, and that basis will react on the whole social superstructure. We shall have occasion in the following pages to note the importance of territory as a social bond and as a determinant of the unit of societal organization. In the second place, every society has a biological basis. The factor of kinship serves also as a powerful bond of union at all levels of culture; it constitutes, in fact, one of the controlling factors in social organization, especially at the lower levels of culture. There are also the effects of racial quality and of the persistent processes of biological selection.

Then there are the psychological bases, the inherent drives, predispositions, and capacities. While these rest on man's hereditary constitution, they are deeply modified by the social environment in which they mature. It is in connection with them that we find the true answer to the question, which comes first, society or the individual? Does man create his social forms and customs or do these make him what he is? Man is a social animal; he always lives in groups. In that case, neither group nor individual could have preceded the other. Man and society have evolved together from out the animal world. At every stage they have made each other, for they are obverse and reverse aspects of the same thing. We cannot think accurately of one without thinking

of the other. All psychology is thus in part social, and all social affairs are in part psychological. The general nature of any society is determined by the nature of its units, and the nature of the units is determined by the society into which they are born. A society and its units thus act and react upon each other. The original or hereditary constitution of man, however, affects all social structures and functions in two primary ways. First, group habits grow spontaneously out of efforts to satisfy human needs. The fundamental drives furnish the ultimate purposive force back of the folkways, while predisposition and aptitude give them form and content. Secondly, the inherent potentialities of human nature set limits to social organization and cultural achievement.

Moreover, the social bonds which make a social group a true society find representation in the beliefs and emotions of the members, so that a consciousness of common interests, as over against other similar groups, pervades the whole. Every society thinks of itself as having a high degree of economic and political unity, and it establishes agencies for the control of the common life both internally and externally. These agencies of social control become most efficient when they have so molded the habits of the individual as to lead to spontaneous action on his part in harmony with the social interests.

As just stated, the cultural milieu, though itself a product in the first instance of the preceding factors, reacts upon each and all of them. A society thus becomes a group with a common culture. Its bonds always include territory, kinship, economic interdependency, and political and cultural unity, and these give rise to a pervasive consciousness of kind which welds the whole into a more or less self-conscious psychic unity. In succeeding chapters we shall glimpse some of the outstanding forms which groups have taken and the means whereby they have given expression to their common consciousness.

Sociological Definitions. Sociological definitions are notoriously difficult because of the extraordinary variability of every class of social objects or relations. What, for example, is the family, using the term as a broad social category? Does it involve one man and one woman, or more than one of either or of both sexes; does it necessarily include children; what degree of permanency of relations is necessary? Similar difficulties confront us in seeking definitions of society, community, association, social

group, custom, institution, nation, state, and other familiar terms. We can only hope by our attempts at definitions to give a certain amount of order to what would otherwise be only a chaos of terms and ideas. We thus hope to clarify thought and aid understanding.

Society. The term *society* is used in a variety of senses and has received, at the hands of social scientists, many definitions. Does any human group constitute a society? Obviously a mob, or a crowd in front of a news bulletin board, is not a society. Is, then, any permanent, or somewhat durable, group a society? In that case a family is a society, as is also a boy's gang, or the inmates of a penitentiary or an insane asylum. MacIver defines society as "every willed relationship of man to man."¹ This is obviously very far from common usage. If I loan my automobile to a friend or sign a contract to buy a lot, I have not created society, nor a society. I have, however, acted within society and in accordance with its established law and custom. Others have defined society as "the social heritage of habit and sentiment, folkways and mores, technique and culture, all of which are incident or necessary to collective human behavior."² This leaves out of the definition the idea of individuals. It makes society synonymous with culture, or the ways in which social life is carried on. But most of culture, that is, the folkways and mores, exist only in individuals, since they have no objective existence.

We may for our purposes here define a society as *any permanent or continuing grouping of men, women, and children, able to carry on independently the processes of racial perpetuation and maintenance, on their own cultural level*. The fact of permanency implies organization with some definiteness of status among members and of authority over them. The fact of race perpetuation implies both sexes and some form of family life and organization. The fact of racial maintenance implies control over territory and some degree of culture, or folkways and mores.³ We shall see in a later chapter that, on the very lowest cultural level, the individual family is able to maintain and perpetuate itself. At that level it constitutes a true, though rudimentary, society. With advances in the cultural level the social aggregate becomes

¹ R. M. MacIver, *Community. A Sociological Study*, The Macmillan Co., 1924, p. 22.

² R. E. Park and E. W. Burgess, *Introduction to the Science of Sociology*, University of Chicago Press, 1921, p. 161.

³ Cf. F. H. Giddings, *Inductive Sociology*, The Macmillan Co., 1901, p. 6.

larger and more complex, with the result that the family, the primordial social unit, becomes dependent on others for increasing portions of those goods, services, and relations which constitute its life. It is no longer able to carry an independent existence at the higher cultural levels. Combinations of families give rise to hordes, clans, and tribes, or to villages, cities, provinces, and nations. Each of these groups may, *at certain cultural levels*, constitute a society, but they become components of a larger society in consequence of processes of social integration. These processes result in the development of a common life throughout a wider area.

The component groups never lose a high degree of self-dependence, but they acquire increasing interdependence in consequence of division of labor and the growth of trade. They become "*component*" societies within a larger "*integrated*" society.⁴ They lose some of their independence but receive in exchange the advantages of outside support and coöperation in both peace and war. They develop agencies of affiliation with other component groups for common action and common control, and they develop new activities and mores to take advantage of the wider contacts and to fulfil their external obligations. This process of integration of formerly independent societies into larger ones finds a thousand illustrations in American social evolution. The frontier village was sufficient unto itself. It combined with others to form larger units, in consequence of growth of population and communication. Colonies with a spirit of individual independence were formed; these combined into a loose federation; and at length formed themselves into a real union. To-day the most remote village is dependent on the ends of the earth for some of its life. If it were permanently cut off from its wider affiliations, it would revert to a lower plan of existence, but would become again a self-determining and self-dependent society.

Society and Community. These have many points in common. We agree with MacIver⁵ that a community is "any area of common life," but we do not agree that this area need have any easily definable boundary. A community, in other words, is a relatively vague group, lacking definite organization and agencies, and yet pervaded by common ideas and interests. As an area of common life it varies with the number of elements of social

⁴ *Ibid.*

⁵ *Op. cit.*, p. 22

life included. A neighborhood is a community in which the number of common elements—customs and interests—are numerous. But even within the neighborhood there may be certain portions of the population which constitute a community within the community. The Swedish immigrants of a New England city or the Chinese of New York constitute such a subsidiary community.

Historically, it has often happened that the sense of community has been a forerunner of the integration of previously independent societies into larger units. Neighboring clans develop interests in common, and then in time of common danger form themselves into a larger tribal unit. The once independent American colonies became a community and then a new nation. A society, as we have defined it, is always a community, but it may have within it a number of communities and be itself a part of a larger community. What we call western nations, those which share western culture, now constitute an international community. As the elements of social life which they have in common become more numerous and common interests become more clearly defined they tend to develop agencies of coöperation. They might in time evolve a new super-state. Japan has recently become a member of this larger community, which seems likely, in time, to embrace the world.

Association and Institution. Within every community are many *groupings for more or less specific purposes*. We may call any such group an *association*.⁶ An association grows out of a common interest or common interests, is limited in purpose thereby, and requires for its functioning the orderly life of a comprehensive society or community. Examples of associations range all the way from bridge clubs, local secret societies, and the town fife and drum corps, to family, church, corporation, political party, and state. An integral society, as we have defined it, is an association. It is the largest association which at any time thinks of itself as having a unified and independent existence. Component societies are also associations, but they have lost some of their previous independence. Associations are extraordinarily numerous in our society. They vary greatly in durability, because some of them satisfy purely temporary purposes, while

⁶ Cf. MacIver, *op. cit.*, pp. 23 *et seq.*; also *The Modern State*, Clarendon Press, 1926, pp. 2-8.

others, such as church and state, endure from generation to generation, but with changing membership, because they answer to permanent human needs.

Associations are not all formed as a result of consciously formulated purposes. The marital association is based on instinctive needs. It gives rise to the family, which may also be viewed as an association. Families expand into larger kinship associations by purely spontaneous processes. Such associations are *genetic* in source, but their purposes may be broadly inclusive of sexual, economic, and political functions. Genetic associations are especially prominent in tribal society. Then there are associations which rest on political or military force. We shall see later that conquest and the subsequent use of coercitive coöperation have been essential conditions for the formation of larger social integrations. War has been the primal agency in nation forming and empire building. A feudal society is an illustration. It begins in force but develops common interests and traditions which at length give it psychic unity. It at length leads to nationalistic society.

Associations may be public or private depending on the nature and scope of their purposes. *Public* associations are those whose activities and interests are representative either of an integral society or of a component society. They are represented in tribal society by clan and tribe, and in our society by town, city, and nation, when organized for common purposes. As a rule, an individual does not voluntarily join a public association; he is usually born into it and becomes a member automatically on reaching a certain age. All societies, however, make it possible for outsiders to join voluntarily. In tribal society this requires some such ceremony as an exchange of blood; in our society it is accomplished by what we call naturalization. Following conquest, individuals are made members in a new public association by force.

The most important public association is the state. This is the comprehensive association of an integral society for all purposes deemed by it of sufficient importance to require the united action of the group as a whole. It is very rudimentary on the lower levels of savage society where a few families join in a loosely integrated horde. It becomes more comprehensive and powerful with the rise of chieftainship, and becomes a forceful, organized

class domination in a feudal society. It tends, in democratic national societies, to include within its active membership all politically conscious individuals. The state is unique among associations in that (1) it includes in its nominal membership all individuals within an integral society, and (2) it does not willingly permit any private associations which seek to contravene the state purposes. The power of the state over its members is not absolute, but is incomparably greater than that of any other organization. Government is the agency through which a state accomplishes its purposes.

Private associations are voluntary groupings in order to promote interests shared by a number of individuals. They are formed primarily for political, economic, juridical, and cultural purposes.⁷ *Political* associations are formed for the purpose of influencing or utilizing the governmental agencies of the state. They may be secret or non-secret, closed or open. A political party in our society is, broadly speaking, an open, non-secret association. It is, however, often directed by secret cabals, and influenced by exclusive clubs. *Economic* associations are myriad. Of them, the corporation has now become outstanding. *Juristic* associations are formed for the purpose of maintaining law and order, or providing for some administration of justice, during times of lawlessness. The vigilance committees of the early days of mining camps are illustrations. *Cultural* associations are obviously numerous and varied; they include educational, ethical, religious, charitable and recreational groups of many descriptions.

In previous pages we have frequently indicated that life is at bottom a struggle for existence. Even in our own age of abundance and security this quality is far from wholly lost. This struggle has driven men into groups for mutual aid and protection and has given rise to an often intense group consciousness. Every group thinks of itself as set apart and as over against other groups. The individual thus thinks and moves in terms of his "in-group" or "we-group," in contrast with "out-groups" or "other-groups." There is thus a fundamental duality in the application of all moral rules. For, what are moral rules? They are the rules which a group sets up to control the behavior of its members in the in-

⁷ See F. H. Giddings, *Principles of Sociology*, The Macmillan Co., 1896, pp. 180 *et seq.*

terest of internal peace and order. The relations of members of a group must be coördinated in order, first, that the group may carry on a common life, and secondly, that it may face other groups with united strength.

Every association must, therefore, have an organization, that is, rules defining the relations and functions of its members and agents so that their common purposes can be carried out. *These rules and agents constitute the group institutions. An institution may be defined as any means or agency set up by an association or consciously approved thereby.* Even the simplest association must have some institutions. A bridge club must have at least a few rules and some organization in order to adjust those conflicts of individual interest and purpose which otherwise would defeat the purposes of the club itself. The larger and more complex the association, the more numerous and varied are its institutions and the more powerful are its agencies. Institutions facilitate the accommodation of individual interests and purposes to each other; they increase the number of possible adjustments by creating confidence and stability of relationships. They may thus greatly enlarge the life of the individual, as the student may see if he recalls the manner in which the established code of the college or university facilitated his entry into its varied activities. Their social utility is aphoristically expressed in the proposition, "In obedience to law is liberty." On the other hand, institutions may become so fixed, so encrusted in the proverbial "cake of custom," that they cramp life and destroy liberty.

Custom, Mores, and Institution. At this point the question naturally arises as to the distinction between custom, or social habit, and institution. The former arise spontaneously and unconsciously out of the trial and error experiences of individuals. Like Topsy, they are not born, they simply grow up. There is competition and selection among possible ways of achieving ends, and those that prove most satisfactory tend to supersede others. These processes may be observed in any social group, a college, a fraternity, a business firm, or any other. Not infrequently it happens that some of these habits are found advantageous to the welfare of the group as a whole, even though opposed by certain members. If they are then approved by conscious and deliberate action, they become mores. Habits found to be positively disadvantageous, or believed to be so, may likewise be consciously

disapproved, and thus become mores also. The right of private property, the authority of chiefs, monogamy, magico-religious beliefs, the honor due the nation's flag, education, the judicial determination of rights, the vice of drunkenness, and the Ten Commandments are examples.

An institution carries the development of a custom one step beyond the mores. Sumner⁸ says: "Property, marriage, and religion are the most primary institutions. They began in folkways. They became customs. They developed into mores by the addition of some philosophy of welfare, however crude. They then were made more definite and specific as regards the rules, the prescribed acts, and the apparatus to be employed. This produced a structure and the institution was complete." There is thus a gradation from the commonplace habit, through habits that may be dignified by the ill-defined status of custom, to those customs that are called mores because they are believed to be related to group welfare. Finally, we have those mores for the support and advancement of which the society has set up definite rules and agencies; these are institutions. Among the most important institutions of our society are private property, the family, the church, the school, and democratic government. Most mores acquire some institutional traits.

A Society and Its Institutions. A society as the association capable of independent existence develops and controls the institutions of most interest to the social scientist. Here at the outset we meet the curious fact that what may be viewed from one angle as an association becomes an institution, because it becomes an agency of the larger group. The family is both an association and an institution. It becomes the latter when it is fixed by law in a certain form with prescribed duties and a definite status. The corporation, likewise arises as a voluntary grouping, becomes socially important, and is then made a creature of the state and subject to control by government. A society is thus an intricate interlocking system of associations, folkways, mores, and institutions.

In the following chapters we have elected to study four of the primary associations and their institutions. They are respectively the agencies of group maintenance; the agencies of group perpetuation; the agencies of group adjustment to the unseen powers;

⁸ W. G. Sumner, *Folkways*, Ginn and Co., 1906, pp. 53-57.

and the agencies of group coördination. They might be called the Economic, the Domestic, the Magico-Religious, and the Political associations and institutions.

SUGGESTED READINGS

CASE: *Outlines of Introductory Sociology*, Chap. 3, pp. 50-71.

GIDDINGS: *Inductive Sociology*, pp. 3-6 and 182-186.

MACIVER: *Community: A Sociological Study*, Bk. I, Chap. 2 and Bk. II, Chaps. 2-4, pp. 22-47 and 98-165.

SUMNER: *Folkways*, pp. 53-74.

CHAPTER XI

THE EVOLUTION OF MATERIAL CULTURE

BASIC ELEMENTS IN ECONOMIC LIFE

The Perennial and Universal Needs. We have several times noted that social life is built about the problems of racial propagation and racial maintenance. The main interests of men everywhere center about the satisfaction of bodily wants. Throughout most of human history, even such a distinctly non-material feature of culture as religion has been a practical art designed to increase food and safety. Even in the very advanced civilizations, most of the waking hours of the population are devoted to activities relating to the production of food, clothing, and the household comforts of shelter, light, and heat. Without these elemental necessities, life is not only mean and miserable, it is impossible. An increase in their abundance results in an elevation of the whole plane of culture, and acts as a transforming influence on all that men think and do. As the great English economist, Alfred Marshall, said, "The business by which a person earns his livelihood generally fills his thoughts during by far the greater part of those hours in which his mind is at its best; during them his character is being formed by the way in which he uses his faculties in his work, by the thoughts and the feelings which it suggests, and by his relations to his associates in work, his employers, or his employees."¹ Such a statement applies equally well to the primitive hunter and cattle raiser and to the modern business man and factory worker.

Increases in material comforts rest primarily on improvements in tools and the related techniques. The elevation of man from savagery to civilization is thus mainly a consequence of the advances in the instruments devised by man to assist him in his daily work. Such advances have increased the numbers of the population, and thus altered the basis of political organization and the whole of those psycho-social relations which constitute

¹ *Principles of Economics*, The Macmillan Co., 6th ed., 1910, pp. 1-2.

non-material culture. It seems safe to say that the most illuminating approach to man's social history is to be found in the story of the improvements in his material equipment. This by no means supplies a complete understanding, but it does supply the most important single key to the interpretation of the social life of any people.

Food. 1. *The Basic Want.* Of the elemental necessities, food is by all odds the most important. It, at least, is always and everywhere necessary for the mere maintenance of life. Food waste, such as is now characteristic of our own society, has occurred only for those brief periods in human history when man has temporarily risen to a high state of material wealth; and even then it was limited to the upper classes, attaching to them as one of the means of "ostentatious expenditure."² We may reasonably suppose that the life of earliest man was, like that of his animal relatives, a perennial search for food. For him there were sharply alternating periods of abundance and scarcity. Having no means of food storage or preservation, he devoured whatever edible thing was in sight, with little apparent thought for the morrow. It is still true that native African hunters, upon killing an elephant or hippopotamus, will gorge themselves to capacity; they then engage in merrymaking and sleeping, after which they stuff themselves once more. This process is continued until the food is consumed. Experience has taught them that there is some satisfaction in gluttony whenever occasion offers, but none in having food go to waste.

2. *Man Omnivorous.* Moreover, most races of men have learned to consume every edible product of their habitats, many of them now considered wholly unfit for our delicate appetites. Many primitive peoples consume food in more or less advanced states of decay. On many occasions man has been reduced to the consumption of grass, leaves, bark, bugs, worms, snakes, and lizards. The Veddahs, living in a well-watered land, subsist largely on roots, fruits, bark and bast of trees, leaves and nuts, fish, small animals, and honey. The Australian aborigines seem to be somewhat more advanced in many respects, but they live in a very niggardly land. They customarily consume various roots, fungi and other vegetable products, shellfish, frogs, bats, caterpillars, cockroaches, worms, grubs, dogs, and kangaroos. The

² Thorstein Veblen, *Theory of the Leisure Class*, B. W. Huebsch, 1918.

Eskimo supplements an almost exclusively flesh diet with the partially digested moss from the stomachs of slaughtered musk-oxen and reindeer. Peoples on the lowest levels of culture are notable for their ability to consume huge quantities of food when opportunity offers, and to fast for weeks at a time when famine requires it.

3. *Food and Non-Material Culture.* Food has so often been equivalent to life itself that, directly and indirectly, ideas about it and methods of procuring it, permeate nearly the whole of primitive culture. The earliest objects of religious import seem to be figurines of "the goddess of fertility" (Figure 53); magic

has left as its oldest extant illustrations, the drawings, on cave walls or dagger handles, of food animals with an imbedded weapon; many of the most impressive ceremonies of primitive religion now have



FIG. 53.—One of many representations of a feminine figure, dating from the Aurignacian culture. It is an outline sculpture in limestone found at Laussel, France. As in the Venus of Willendorf, a statuette of the same type, the face and feet are unfinished. She holds in her right hand a bison horn (a cornucopia?). Believed to indicate the worship of the magico-religious forces supposed to control natural abundance. About one-fifth original size. (After Burkitt.)

to do with the increase in the totemic plants and animals; in ancient Mexico, when it was believed that the gods who supplied rain required human blood, thousands of human victims were offered up in satiation of the divine thirst, in order that their survivors might eat, and eat more abundantly. Man's dream of a heavenly paradise has usually been that of a happy hunting ground, or a land flowing with milk and honey. In cultural evolution, all the higher stages have been dependent on the acquisition of a food surplus. Cities and empires, the arenas in which every great civilization has developed, have risen only where

man had so conquered nature that an abundance of food was assured. Moreover, there are many grounds for supposing that they all tended to fall into decay and finally disappeared largely in consequence of climatic changes, which greatly reduced the food supply, decimated the population, and broke up the social organism.

4. *Primitive Food Supply and Coöperation.* The question arises whether the primeval phases of food acquisition were accompanied by group coöperation and solidarity. The earlier groups were undoubtedly small. Moreover, since most of the food secured was seized and eaten on the spot, we may suppose that food collection was in part an individual enterprise. In fact, Professor Karl Bücher³ calls the first stage in human economy "the individual search for food," and his views have been widely accepted. There are doubtless instances where each man, woman, and child gathers a part of his own food. The men and the women may also, here and there and on occasion, acquire, prepare, and consume their food separately. Moreover, there is an early, profound, and long enduring separation of the principal food sources of the two sexes. On account of her child-bearing function, woman learned how to glean a subsistence from a relatively small area. Her knowledge of vegetable life and of the smaller forms of animal life became extensive. Man, on the other hand, was privileged to roam more widely. While she became the first agriculturist, he became the hunter and fisher, and in due time the domesticator and cultivator of animals.

Nevertheless, it would be erroneous to suppose that there was ever a time of complete individualism in food getting. Coöperation, both between the sexes and among members of the group at large, was always necessary for protection and for maintenance. Group solidarity is greatest when danger threatens, and even among the earliest food collectors, it must have reached a high pitch in the presence of the great carnivores or such huge food animals as the mammoth and the woolly rhinoceros. Moreover, the family is an important economic unit, even among the lowest savages. Men are required to do their share in the maintenance of women and children. The moral code enjoins generosity, especially in times of food scarcity. In fact, among the most

³ Karl Bücher, *Industrial Evolution*, trans. by S. M. Wickett, Henry Holt and Co., 1901.

primitive peoples food is shared with any hungry person, even strangers, to an extent that seems incongruous to our property-ridden minds. The force of the communal spirit in matters relating to food is illustrated by the elaborate rules for the division of the spoils of the chase. A. W. Howitt, speaking of an Australian tribe,⁴ points out that the rules for distribution of a wombat are very strict. After the animal has been cooked and skinned, "the skin is cut into strips and divided with parts of the animal thus. The head to the person who killed the animal. His father the right ribs; mother the left ribs and backbone, which, with some of the skin she gives to her parents. Her husband's parents receive some of the skin. The elder brother gets the right shoulder, the younger the left. The elder sister gets the right hind leg, the younger the left hind leg, and the rump and the liver are sent to the young men in the camp." Such elaborate rules are unusual, but the custom of sharing food is widespread among hunting tribes, as also punishment of those who through laziness or fear fail to do their part in food procurement.⁵

Clothing. It goes without saying that earliest man wore no clothing. A large proportion of the nature peoples still live in entire nudity, or did until very recently. Even the Eskimos remove all clothing in their warm winter huts. The primary purposes of clothing are ornamentation and protection from the weather. Of these the first is the most universal and enduring. Vanity has led man to devise the greatest variety and most extraordinary means of achieving personal distinction. He will have his teeth knocked out, or filed to saw points; he will plait and cut his hair in varied shapes, and decorate it with curious articles and substances; he pierces his ears, his nose, and his lips, and hangs upon them gaudy ornaments; he cicatrizes and tattoos his face and his body, by processes sometimes taking years of painful fortitude; he wears rings in his nose, ears, and lips and about his neck, arms, legs, fingers, and toes; he smears his body with fats and oils, and paints thereon fantastic designs. Even the highly civilized Chinese bind the feet of their women, while western women not long since committed the even more deadly atrocity of the wasp-waist corset.

⁴ A. W. Howitt, *Native Tribes of Southeast Australia*, London, 1904, p. 759.

⁵ For an extended criticism of Bücher's theories, see Olivier Leroy, *Essai d'introduction critique à l'étude de l'économie primitive*, Paris, Paul Geuthner, 1925.

Clothing thus began as ornamentation, and is even yet much more elaborate on festal occasions. The Caribs, in fact, though possessing clothing, wear it only for stated festivals. But as man long since came to dwell in temperate climates, clothing became essential for warmth and protection. In harmony with their earliest use for ornamentation, clothes have always been a means of class, race, or nationality distinction, with the possible exception of certain modern very democratic societies. Even to-day, however, the lower classes imitate the upper, who resort to costly jewelry and to frequent changes of style to preserve their distinction. Under the influence of democratic ideals and western international capitalism, all nations are now adopting similar modes of dress.

In all societies having clothing, it is closely associated with a sense of shame regarding nudity. This seems to be a consequence rather than a cause of clothing, as such a feeling clearly does not exist among the naked nature peoples. Moreover, it is almost purely a matter of social convention. Among the Japanese the sexes bathe together, while among us there is now and in the past a very wide range of variations in the conventional requirements. A gentleman or a lady is quite differently attired at a fancy dress ball, for the street, and at the bathing beach. What is permissible on the stage or in the opera ballet would be quite indecent for afternoon tea.

The earliest garments were made either from the skins of animals or from plaited grass, leaves, bark, or bast. There followed a variety of leather and fur garments, and improvements in the methods of utilizing vegetable fibers for rough articles of clothing. Revolutionary advances came with the invention of the spindle for making thread and the hand loom for weaving it into cloth. Both date from Neolithic times. No equally important improvements occur until the introduction of the spinning wheel in the fifteenth and sixteenth centuries, and the power loom in the late eighteenth. Spinning and weaving, in spite of their very great importance, thus remained among the most unprogressive of the industrial arts during thousands of years. Whether this was due to the fact that they were primarily feminine occupations among the European races is not certain, though probable. In spite of the crudity of the tools, however, remarkable products of a wide variety of materials, often extremely fine and soft in quality and

delicate in pattern, were achieved. When improvements in apparatus came, they were the result of masculine inventive genius. Before the end of the eighteenth century, power had been applied to both spinning and weaving, and a new era was begun. In fact, the modern factory system met with its first phenomenal success in the textile industry, so that the rapid and remarkable developments represented by the spinning-jenny, the throstle machine, the power loom, bleaching, dyeing, and printing constitute, with the steam engine, the Industrial Revolution, the most momentous advance in material culture since the smelting of iron. The development of the textile industries made England the leading industrial and commercial nation of the last century, led to her domination of India and Egypt, and to her imperialistic interests in China and elsewhere, fastened slavery on the Southern States, and led to much of the trade rivalry and tariff legislation of recent times. The whole world is now better clothed in consequence. Latterly, the factory system has made another encroachment upon craft and home industries in the development of ready-made clothing. This has risen rapidly in the last few decades, and is now one of the greatest of all industries in number of employees and value of products.

Shelter. Shelter, like clothing, evolved from primitive nothingness. Like clothing also the size and quality of the house has always been a mark of individual worth and class superiority. Like clothing also it may be made of various materials, serve a variety of purposes, and be built according to numerous patterns. Some tropical peoples still have no dwellings, but, as they wander about, utilize trees, caves, rock-caverns, and rude wind shelters. The Veddahs, for example, usually sleep in or under the trees, but take to rock shelters during the rainy season. Next to the rude wind shelter in primitiveness come pits and pit shelters dug into the side of a hill or mound, with the open side toward the fire. These are but a step from the cave, a pit with a roof. Caves or pits with flat roofs easily evolve into those with elevated roofs. Similar caves are still in use in this country for the storage of winter vegetables and other foods, and for shelters during cyclonic storms. Another primitive device still encountered is the wall of wattle-and-daub construction, or intertwined branches and twigs plastered with clay. Both the materials used and type of construction vary with the resources of the habitat. The

snow and ice igloo of the Eskimo; the log cabin of the Russian peasant; the sod house of the American prairie pioneers; the mud and adobe-brick huts of desert folk; the bamboo cottages of the Japanese; these are a few among many illustrations.

So long as man lived a migratory existence, permanent dwellings were unknown; he contented himself with temporary huts or tents of skin, hides, felt, or bark. The Indian wigwam is a symbol of migratoriness, as is the tent of the Mongol. The log house of the Iroquois, however, substantially built of logs and bark, with chinks plastered with mud or stuffed with moss or grass, provided with places for fire, for sleeping, and for storage of food, is a symbol of the achievement of sedentary life. The house is not merely a shelter from rain and cold; it is a place of rest, recreation, and sleep; it may be a center of social life, and a workshop; it is the symbol of home and fireside, of comfort, and of stable family life. Among most relatively advanced peoples houses are built of wood, usually with roofs of grass, straw, reeds, or branches of trees, not infrequently covered with dirt. The destruction of villages and towns by fire has, in consequence, been a frequent source of misery and destitution. As late as 1816 in Prussia "two-thirds of all buildings were still thatched with straw or reeds. The wooden houses were the cause of frequent conflagrations which raged in the middle ages. Almost every town suffered from fire many times in every century."⁶ Even roofs of slabs and shingles, made possible by the manufacture of iron nails, were an insecure protection against fire, while fireproof roofing materials are strictly modern.

Great advance was achieved by the use of stone and brick, and the development of masonry. They made possible the great city. The concentration of population was still further advanced by the evolution of the multiple house, with separate flats for several families. Finally, in our own time, the use of steel frames makes possible the multiple-storied apartment house of the modern metropolis.

It is impossible here to detail the improvements in household utensils and equipment. The story, however, is very similar to that of clothing and shelter, in that there was very little notable improvement from the days of Roman houses with their central heating systems, baths, luxuriant wall and floor coverings, chairs,

⁶ F. Müller-Lyer, *History of Social Development*, trans. by E. and C. Lake, London, George Allen and Unwin, 1913, p. 146.

tables, and divans, until almost our own day. The whale-oil lamp and the tallow candle were superseded by the kerosene lamp only after 1870; the gas light followed shortly, while the electric light was the invention of Thomas A. Edison. An end to the age-old reliance on tinder boxes and similar devices was decisively marked by the invention of the first friction match, the "lucifer match," in 1827, though it had logical but short-lived predecessors in the "brimstone match" and the "instantaneous light box" of the preceding generation. Stoves both safe and efficient have effectively replaced the fireplace in the last century, while furnaces, steam and hot-water heating plants, and oil burners, are extremely recent.

Fire. The discovery of a method of making fire was a momentous one. While natural fire was familiar to peoples living near volcanoes, the majority of races either discovered or acquired by cultural diffusion some primitive method of producing it. These methods are roughly of two types: either two pieces of wood are rubbed together, or a piece of flint is struck with some hard substance. Not improbably both methods were accidental discoveries. Moreover, fire was doubtless for a long time used for magical and religious purposes before it came to be used primarily for cooking and warmth. Primeval man must often have had impressive experience of the terrible power of untamed fire. Everywhere he has surrounded fire with magical and religious feeling, and even to-day most people find in it a subtle witchery. Its nature, its forms and power, and even its sound and color make it one of the most fascinating objects in nature. Its use for cooking led to pottery making, and thus to an extension and improvement of the food supply. Its use for warmth added to human comfort, health, and vigor and was essential for the settlement of the cooler areas of the temperate zones.

The conquest of fire was in many respects the most momentous of all human achievements. The ability to produce it at will gave man control over a power having many uses, and civilization may be measured by the extent to which man controls and utilizes the forces of nature. Even before he was able to make it at will, he, doubtless, as did the extinct Tasmanians, kept it burning constantly, borrowing from neighbors, if it went out. Fire not only warmed man in winter, lighted his camp and thus warned off beasts and hobgoblins at night, and roasted his game;

it made possible the manufacture of pottery and of bricks, and the smelting of bronze and iron. The hearthstone has since immemorial time been the symbol of home and family life, for fire made possible sedentary life; it was a prerequisite of the permanent home and the development of the village community. The oldest extant fire-making instruments are numerous "strike-a-lights" of flint or iron pyrites from the Upper Paleolithic. While the ancient civilizations, notably the Romans, made considerable progress in the use of fire for domestic and economic purposes, western culture made little progress beyond the open fire of Paleolithic man until almost our own time. The match, the stove, the furnace, and the blast furnace all belong to very recent times, as does the use of coal and oil.

Tools. To achieve a moderately successful adjustment to his physical environment, man needs food, clothing, shelter, and fire. To secure these he needs tools. Man is often called the tool making animal. Apes use sticks for walking, throw stones to break open cocoanuts and oysters, and otherwise use material aids already supplied by nature; but they do not invent such aids, although they are rather skillful with their hands. Man also uses sticks and stones, but he also modifies them and other materials more or less indefinitely to fit them for human purposes. Tools are in essence an extension of the powers of the human hand. All the primary tools are obviously suggested by what the hand, or the fist, can do, but can do only moderately well. One can pound with his fist, but can pound more effectively with a stone, and still more so with a stone fastened to the end of a stout stick. A long stick is more effective than a short one for that purpose, and a large unbreakable head for the hammer is more effective than a small stone. Thus the modern sledge hammer with a steel head is a lineal descendant of the stone which primeval man used to crack a walnut. In like manner such tools and implements as pincers, borers, knives, forks, spoons, cups, plates, paddles, oars, hoes, spades, rakes, and all weapons for thrusting and stabbing, such as daggers, poniards, swords, halberts, lances, and harpoons, are extensions of the powers of the hand and arm. As Müller-Lyer⁷ says: "The hand, while being itself no tool, is yet the parent of all the most formidable and effective weapons and tools of to-day." (Figure 54.)

⁷ *Op. cit.*, p. 54.

The significance of such facts for an insight into the primary causes of the remarkable achievements of man, in contrast with his ape relatives, can scarcely be exaggerated. When he parted ways with them a million or two years ago by descending from the trees, he took a step which apparently determined his further biological evolution and hence the origin and growth of culture. Thereafter his hands became the chief physical organs of food gathering and defense. Professor Frederick Tilney ⁸ has advanced



FIG. 54.—In A and B are shown face and profile views of a Chellean hand-axe or *coup-de-poing*, one of the oldest and the most important tool and weapon of the Paleolithic age. This is an unusually fine specimen. Held firmly in the hand by its broad base, it enabled primitive man to conquer even ferocious beasts. In C is shown a Solutrean laurel leaf point, usable as a tool or as a poniard, dagger, or lance point. From A. de Mortillet, *Classification palethnologique*, Paris, 1908.

the thesis that the new activities and adjustments involved in the new mode of life were primarily responsible for the enlargement and increased complexity of brain structure. Throughout human history the powers of the hand have not only served as a constant suggestion to inventiveness, but have been a primary factor in bringing the suggestions to realization. As stated in an earlier chapter, the hand is the most versatile organic structure found in all nature. It can grasp a great variety of instruments from stick, stone, and hammer to surgeon's knife, artist's brush, and violinist's bow, and make each of them an extension of its

⁸ *The Brain from Ape to Man*; reference quoted from *Eugenical News*, Vol. XI, 1926, pp. 157-160.

own powers. It is "the tool of tools." The very term handicraft suggests its basic importance in man's industrial history; artisans in all ages have been hand workers. Art in all its forms, literature, music, painting and sculpture, is no less dependent on its dexterity and versatility.

The oldest extant tools were made of flint. There must have been earlier ones of wood, bone, horn, and softer stone. Soon after man learned to make tools of bronze great civilizations appeared, probably because those peoples who were equipped with swords of bronze were able to extend their dominion over backward peoples. They thus widened the area within which peace and order reigned, a condition which encouraged trade and the accumulation of wealth. Population increased and the arts of civilization grew apace. During the Age of Iron arose the cultures of Greece and Rome on almost exactly the same kind of material basis as those of Assyria and Egypt. Thereafter there were no notable improvements in the technical arts until we approach modern times.

THE PREHISTORIC CULTURE STAGES IN EUROPE

In the Beginning. Absolute origins are always shrouded in mystery. They are hidden behind the impenetrable mists of prehistoric time. We can only imagine what manner of life man lived during the almost interminable period when he was becoming man. But our imagination is not without considerable guidance from facts, for we know something about the great anthropoids below man, and about the lowest human groups now living. The break between them is far less in many respects than that between the latter and ourselves. We may reasonably infer, from the logic of essential needs, that our remote ancestors must have wandered about in their habitats searching for food, after the manner of animals. Once the human progenitor had descended from the trees, he found life more varied and dangerous than it had been. No longer able to glean his subsistence largely from the tree tops, nor to flee thither on the approach of danger, he necessarily became a hunter and fighter. The increased hazards of existence required greater courage, endurance, skill, and ingenuity. Having at first no tools or weapons except sticks and stones as nature provided them, he must very soon have devised some improvements in them. These first inven-

tions have left no trace because they were themselves made without tools, and must have been made in wood or other perishable materials, or consisted of such crude fracture of stone as to leave them indistinguishable from stones broken by natural processes. Products of human artisanship, therefore, date back only a fraction of the total period of human existence.

Man probably lived for eons of time in a stage of culture lower than that of any known races. Motivated constantly by the persistent need of daily bread, and recurrently by the desire for a mate; gathering, gleaning, seizing, and digging his food with the aid of stones and sticks much as nature supplied them; with little or no clothing; finding shelter in trees and caves, or behind rocks and hillocks, often sleeping in the open with no protection from the elements or wild beasts; more or less constantly on the move, home and fireside not yet having come into existence; threatened and at times overwhelmed by nature, beast, and fellow men; living in unorganized or loosely organized groups, which in times of danger or excitement formed into more compact bodies, implicitly obedient to their natural leaders; with only the most rudimentary language; with only the natural family of the higher mammals generally; and in a mental state of nearly complete puzzlement as to the forces and processes of life and nature; such in brief picture was the lot of man for many generations. It was, as the eighteenth-century philosopher, Thomas Hobbes, said, "poor, nasty, brutish, and short." These were millenia during which natural selection worked with extreme vigor. Generation followed generation in quick succession, and any defect, physical or mental, which constituted a serious handicap in the struggle for existence resulted in quick elimination. Individual variation from type was narrow. Human bodies were sound and hard, and senses keen and alert. Conditions did not favor the development of softness, gentleness, and altruism. It must have been the repeated experiences of famine, for example, which taught man to take various measures to control his numbers, such as killing the aged, the diseased, and the sick, infanticide (especially of females), abortion, the limitation of the number of offspring permissible to one woman, exposure of defectives, and related practices.⁹

⁹ A. M. Carr-Saunders, *The Population Problem*, Clarendon Press, 1922, Chaps. vii, viii, and ix.

War and the Chase. During these countless generations there were two kinds of creatures that stirred man more deeply than most other objects in his environment. These were the great beasts and strange men. It was in consequence of them that the most important key to the earliest stages of cultural evolution is found in the improvement of weapons of the chase and warfare. It was largely in consequence of these same beasts and men also that man took his first steps in coöperation and social organization. We have seen that man has a gregarious tendency, though he is strongly egoistic in his peaceful pursuits. It is characteristic of him, however, to rush together on the approach of danger and to combine efforts under natural leaders. We may reasonably imagine the men of early Pleistocene time, living in loosely organized hordes of relatively small numbers, wandering about much as do the Veddahs to-day in search of food. On the approach of a large and dangerous beast there would be great excitement; social control would become absolute; each would obey the leaders and follow the discipline which experience had taught him. It is interesting to note that means of sounding an alarm are very ancient as well as very modern. One of the inventions of Paleolithic man, a whistle made of bone, may have been used for this purpose. Man was perforce a hunter, and, as we noted in an earlier chapter, his long life as a hunter left an indelible imprint on his psychic nature. Whether or not there ever was a wolf-apê,¹⁰ the call of primitive man to his fellows to join in the chase or to help ward off the enemy was not greatly unlike that of the wolf whose baying calls the pack to his side. Human sports still center around the chase and about activities which constitute similar tests of courage, agility, strength, endurance, and the combative spirit. The games of boys, as well as their fighting, wrestling, and scuffling, are highly suggestive of the activities of war and the chase in earlier cultures.

In his wanderings, and especially when compelled to change his habitat by climatic variation, fire, flood, or drought, different human types would have come into contact and combat with each other. Such contacts have undoubtedly been the most stimulating of all human experiences. They inevitably led to conquest or extermination. Man developed his tools, his weapons, and his social organization for efficiency in the chase; but he

¹⁰ Carveth Read, *The Origin of Man*, Cambridge Univ. Press, 1925.

put them to supreme test in warfare. He has always been his own most redoubtable enemy. What the Austrian sociologist, Ludwig Gumplowicz, called *Der Rassenkampf*, or "the struggle of races," has been a fecund source of those dynamic social forces, expressing themselves in leadership, invention, and the recasting of culture traits, which have lifted man from savagery to civilization. We may hope that the era of warfare is about ended, but we should not fail to recognize that it was an unequaled stimulus to improvements of material culture and social organization. If it destroyed, often wantonly and irreparably, it set going those enzymes and neurones which have enabled men to rise to previously unattainable heights. Race pride is an expression of the group will to live; under the conditions which have prevailed during most of human history, it easily becomes the will to dominate. In the earliest beginnings of cultural evolution man's fighting and hunting in groups led to his development of stone cleavers and poniards, and thus to his conquest of even the most ferocious and terrifying beasts of field and forest. Since then these same qualities have enabled him to build empires, and to destroy them. They still constitute large elements in business and politics, and they, rather than pacifist non-resistance, will undoubtedly dominate the course of man's future history.

Geological Ages and Cultural Stages. The demonstration that man has existed for hundreds of thousands of years constitutes a modern revelation. The older chronologies placed Adam and Eve only a few thousand years away. Even the earth was commonly believed to be of relatively recent creation. As geology advanced, the age of the earth grew from thousands to hundreds of millions of years. Likewise, nearly every fresh discovery pushes back the origin of man and the beginnings of culture to more and more remote epochs. While a Paleolithic flint implement of cleaver type was discovered in 1690 in London and preserved as a relic of ancient handiwork, it was a full century and a half before its definite location in cultural and geologic time was possible. Considerable progress in prehistoric archaeology began after 1850 and has continued with increasing interest up to the present.

Some of the more important features of the present state of knowledge and opinion are presented in the following table. This shows the later part of the Tertiary and all of the Quater-

nary. It will be observed that the latter is divided into the Pleistocene or Glacial, the Post-Glacial, and the Recent stages. The length of time indicated is only one of several such estimates and has about it nothing of finality. It is generally agreed that the whole of the time since the last ice age in western Europe is about 25,000 to 30,000 years, and that the second and third interglacial phases were definitely longer than the glacial phases. Nor is there any finality attaching to the geological antiquity of some of the culture types in the fourth column. Some authors put the eolithic finds well down in the Quaternary, though there is a rapidly increasing consensus of opinion in favor of the Pliocene epoch of the Tertiary, or even earlier.

All authorities agree that the Mousterian culture was the work of Neanderthal man, and that it arose in the third interglacial phase; but some extend it into the fourth glacial. The snow and ice, even at the height of the glacial phases, did not cover France, except in those areas bordering on the Alps. It was thus possible for the Paleolithic cultures to survive in France, Spain and Italy. The Crô-Magnon race is generally believed to have appeared during the fourth glacial epoch with the Aurignacian culture. Associated with him in southern France was the relatively short Combe-Capelle race, while to the south was the Negroid Grimaldi race, and farther east, in Austria, was the long-headed Brunn type. These races mark the definite entrance of *Homo sapiens* into western Europe. The Aurignacian and subsequent Upper Paleolithic cultures are consequently superior in skill and variety to those of the Lower Paleolithic. Before the close of the Neolithic culture, with the appearance of settled agriculture, pottery, weaving, and the domestication of cattle and sheep we approach modern times.

The successive phases of culture were associated with different racial types. Were the older types driven out or exterminated? Mousterian man disappeared; he was inferior in both mentality and cultural equipment. Some scholars hold that the Aurignacians are now represented by the South African Bushmen and the Magdalenians by the Eskimos, because of cultural similarities. In any case, it is in general true that the newer types excelled their predecessors in both racial quality and material culture.¹¹

¹¹ See especially W. J. Sollas, *Ancient Hunters and Their Modern Representatives*, The Macmillan Co., 3d ed., 1924.

GEOLOGIC AGES, EUROPEAN HUMAN TYPES, AND CULTURE STAGES

GEOLOGICAL PERIODS		TIME IN WESTERN EUROPE	CULTURE TYPES WESTERN EUROPE	PROBABLE HUMAN TYPES	CULTURAL ACHIEVEMENTS
Age of Man or Quaternary Pleistocene, Ice, or Glacial Age	Recent Alluvial	500 to 1 B. C. 900 to 500 B. C.	Iron { La Tène Hallstadt	Alpine	Multiple advances
		2500 B. C.	Bronze	Nordic	Battle axes, and swords
		10,000 B. C.	Eneolithic (Copper) Neolithic	Mediterranean	Settled agriculture Swiss Lake dwellings; and villages
	Post-Glacial Stage	25,000 B. C.	Paleolithic Azilian Magdalenian Solutrean	Combe-Capelle	Bow and arrow Pottery and domestication of animals; wheel; linen Fine needles, bracelets Chisels, awls, dart throwers Harpoons of reindeer horn Polychrome frescoes; cave art
					Javelins Engraving and animal sculpture
					Shouldered point Laurel-leaf point Large hearths
	4th Glacial Würm	50,000 B. C.	Upper Aurignacian	Brünn Grimaldi Crô-Magnon Homo sapiens	Well developed art Venus of Willendorf Various bone and horn implements Lance points of bone, horn, ivory Marked improvement in flints
	3d Inter-glacial	150,000 B. C.	Middle Paleolithic Mousterian	Neanderthal	Use of traps and pitfalls Well defined hearths Flint quarrying
Cenozoic, Age of Mammals	3d Glacial Riss	175,000 B. C.	Lower Paleolithic Acheulian	(River Man) Galley Hill	Scrappers Planing tools Awls and borers
	2d Inter-glacial	375,000 B. C.		Chellean	Side Scrappers <i>Coup de poing</i> or Hand ax
	2d Glacial Mindel	400,000 B. C.		Heidelberg(?)	
	1st Inter-glacial	475,000 B. C.		Pre-Chellean	
	1st Glacial-Günz	500,000 B. C.	Eolithic(?)	Heidelberg(?)	
	Pliocene		Eolithic(?)	Pitldown(?) Pithecanthropus(?)	First crudely chipped flints Natural flints
	Miocene		Eolithic(?)		
	Oligocene		Eolithic(?)		

Question of the Eolithic Culture. The progress of archæological research in western Europe has led with greater and greater plausibility to the theory that numerous bits of chipped flint called eoliths, found in various places in England and Belgium, represent the earliest artifacts of human archæology. When these flints were first brought under discussion, it was generally believed that they represented the action of moisture and freezing temperature, or even the result of abrasion and attrition. It was even shown by actual experiment that under such action flint would crack into flakes resembling many eoliths. Intensive study, however, has indicated that these eoliths occur in places having various other indications of human habitation and industry. Moreover, some of them seem almost certainly to be the result of human effort. On the other hand, they are found in geological strata of such antiquity that many scholars believe them to antedate the appearance of any known type of man in western Europe. The relatively recent discoveries of the Heidelberg and Sussex types have shown the necessity of extending the period of man's residence in western Europe back at least 200,000 years, and possibly twice as far. But eoliths apparently extend well back into the Tertiary Age, or some hundreds of thousands of years earlier than the presumed age of the oldest fossil men in western Europe. While the majority of anthropological opinion to-day favors the theory that the eoliths represent the oldest existing evidence of human industry, all doubt about them has not yet been dispelled.

There is clearly nothing improbable about the majority opinion. We must assume that man's first efforts to make tools and weapons of stone would have been relatively crude. The moderately clear record of Paleolithic industry shows that improvement was slow and that really fine stone implements are not more than 40,000 years old. It is not to be presumed that men definitely inferior to *Homo sapiens* would have hit upon a more finished and effective skill than he, or would have entered at once upon a high state of stone industry. The eoliths are of a form which might very well have represented the first stages in the use of stone. It is not impossible that they represent the work of ancestors of Heidelberg or Piltdown man. They may, however, be the work of some other extinct race of whom no remains have yet been found.

Latterly, the probability that the coliths are, at least in part, the work of human hands has been greatly increased by their discovery in prepaleolithic strata in the Nile valley, in south Tunis, and in Algeria.¹² These new finds are even better evidence for the colithic theory than those of Europe, because of their location in deposits less likely to be the result of purely natural causes. Their discovery, together with the Galilee specimen of Neanderthal man, and the rapid establishment of a remarkable parallelism between the early Paleolithic artifacts of Egypt and the Near East with those of western Europe, promise considerable clarification of the early pages of human history in the near future.

The Paleolithic Age. The characteristic feature of the Paleolithic, Old Stone, or Rough Stone culture is the existence of a considerable variety of tools and weapons, usually of flint, made by striking one stone upon another, so as to chip off flakes of varying size. Frequently, these implements are chipped on one side or one edge, though in the more skilled stages they are chipped on both sides and on two or more edges. The implements of the Lower and Middle Paleolithic were roughly chipped by the method just indicated. Those of the Upper Paleolithic are much smoother and neater in finish, due to the adoption of an improved technique. This consisted of using pressure instead of blows, or retouching instead of fracturing. This pressure was usually exerted by a piece of bone or horn, and enabled the artisan to break off flakes of flint uniform in size. The cruder method was more rapid, even though many flints might be spoiled in the making of a single tool. In its higher form, as illustrated by the Solutrean laurel-leaf and willow-leaf points, the Paleolithic industry represents an extraordinarily high development of human handicraft, combining skill, patience, and a fine artistic sense of form. (Figure 55.)

The names of the different culture stages, such as Chellean and Mousterian are derived from places in France, as Chelles and Le Moustier, where the particular type of flints characteristic of these stages are found in abundance. It must not be supposed, however, that these culture phases were found solely in these places; some of them are known to have existed in many parts of the world. Any place where human artifacts are found

¹² J. L. Myers, *The Cambridge Ancient History*, The Macmillan Co., 1923, pp. 11, 31, 36, and 45.

is called a station, and many hundreds of Paleolithic stations have been located. There is no doubt about the chronological order of these cultures, because they always occur in the same order wherever found. The archæologist determines this order by digging into the river drift or loess, into river terraces, or into the floors of caves. He finds layers of sand, gravel, clay, and other accumulations some of which contain human artifacts, charcoal remnants of fireplaces, and the bones of animals used for food.¹³ In some places several of the Paleolithic cultures are found one on top of the other, and always in the same order. The time estimates made by different students are, however, quite variable, since their conclusions rest on different guesses

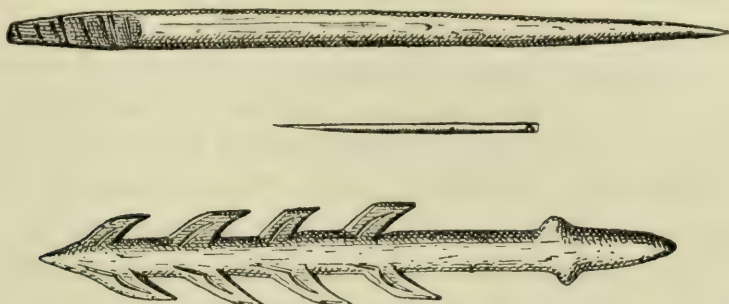


FIG. 55.—A small bone needle (middle), a horn lance-point, and a reindeer horn double-barbed harpoon of Magdalenian type. They give a suggestion of the workmanship of the Old Stone age. (After de Mortillet.)

as to the length of time required for deposits of various sorts to accumulate. A large factor in all such estimates is climate. It is known that great climatic changes occurred, but just how these would affect the rate of soil erosion and the deposit of debris is difficult to estimate.

During this long period of several hundred thousand years, there were many profound changes of climate accompanied by changes in the types of man and in the characteristic flora and fauna. During all this period, however, man was a hunter, living in the open during the warmer interglacial periods and taking to the caves and rock shelters during glacial periods. It seems probable that he continued to reside in various parts of western Europe right through the glacial phases. The most striking human change in this period is the disappearance of Neanderthal man. It is not improbable that he was exterminated

¹³ Refer to drawing of the Krapina Cave in Chapter II.

by the more highly evolved Crô-Magnon and Combe-Capelle types who brought in the first phase of the Upper Paleolithic, the Aurignacian, culture. From that time on there is a multiplication of human types, the Grimaldi, a Negroid type, and early varieties of the Mediterranean race appearing along the shores of the Mediterranean; the long-headed Brunn type found in Moravia and Czecho-Slovakia together with Solutrean implements, while long before the end of Paleolithic times the Nordic race had appeared in northwestern Europe. No round-headed types seem to have appeared in western Europe until Neolithic times. There was thus an increasing mixture of racial types and of cultural traits, two important conditions of cultural advance.

The changes in flora and fauna in Western Europe were striking. In Chellean times, for example, the climate was warm, and early types of the southern elephant, rhinoceros, hippopotamus, sabre-toothed tiger, wolf, beaver, horse, cave lion, cave bear, and cave hyena were common. During much of Mousterian time, when Neanderthal man lived all over central and western Europe, the climate was cold, and the characteristic animals included the mammoth, woolly rhinoceros, reindeer, arctic fox and hare, banded lemming, bison, wild cattle, wolf, fox, and various deer and bears. Most of these same animals flourished throughout the whole of the Upper Paleolithic, which was quite cold in temperature, and generally damp.

The culture of the Paleolithic period centers about stone, fire, and game animals. The stone tools were nearly all for use in hunting or skinning animals, and cleaning hides and furs. The most common was the cleaver or *coup-de-poing*, a piece of sharpened flint, with the blunt end so shaped as to be firmly grasped by the hand. With it man could strike a powerful and penetrating blow. There were in addition knives, scrapers, points or borers, scratchers or gravers, spokeshaves, saws, and hammerstones. Bone was used also for chopping blocks, compressors, and in preparing skins. In the Upper Paleolithic the artisanship in bone, ivory, and horns of reindeer and stag becomes more elaborate, while stone implements are finer and more varied. Bone needles with eyes, fishhooks, awls, javelin points, harpoons, and batons, or magic wands, appeared. In fact Paleolithic man had fairly effective tools for every type of use. He had *cutting*

tools, such as cleavers, knives, axes, adzes, chisels, gouges, and saws; tools for *stabbing*, such as javelins, poniards, and harpoons; tools for *abrasion*, *smoothing*, and *polishing*, such as scrapers, gravers, and whetstones; tools for *fracturing*, *crushing*, or *pounding*, such as chipping and flaking implements (bone or wood), and hammers (stone); tools for *perforating*, such as drills, awls,



FIG. 56.—Above is a miniature and rather ineffectual outline of the animal figures of the frescoes on the ceiling of a cavern at Altamira, Spain. The original paintings cover a length of forty-six feet. Many of the figures are done in four colors, black, red, brown, and yellow, and are extraordinarily beautiful and lifelike. Altogether they constitute one of the finest examples of Paleolithic art. Below the ensemble are two figures, a charging bison and a running boar, on a larger scale. From S. Reinach, *Répertoire de l'art quaternaire*, Paris, 1913.

and needles; and tools and materials for *grasping and joining*, such as tongs, thongs, glues, and cements. He also knew the use of snares, pits, traps, fishhooks, and nets.

It was in Aurignacian times that art seems to have been born. It began in the engraving of javelin points and magic wands and in the making of images. There was doubtless some magico-religious significance to much of primitive art. The Venus of

Willendorf and the stone relief at Laussel (see Figure 53), for example, are believed to represent the goddess of fertility; if so, they are among the oldest evidences of religious practice. In primitive magical belief, the decoration of javelin points increased their accuracy; the drawing of the figures of animals made them easier victims. The artistic achievements of the Magdalenians in drawing, painting, and sculpture were truly extraordinary. Their cave decorations were remarkably realistic and drawn with extraordinary skill. Many paintings are in several colors and in such deep recesses that they must have been done by artificial light. (See drawing of stone lamp, p. 386.) Similarly the etchings on stone and bone are not only notably true in form, but lifelike and full of vigorous action. (Figures 56 and 57.)

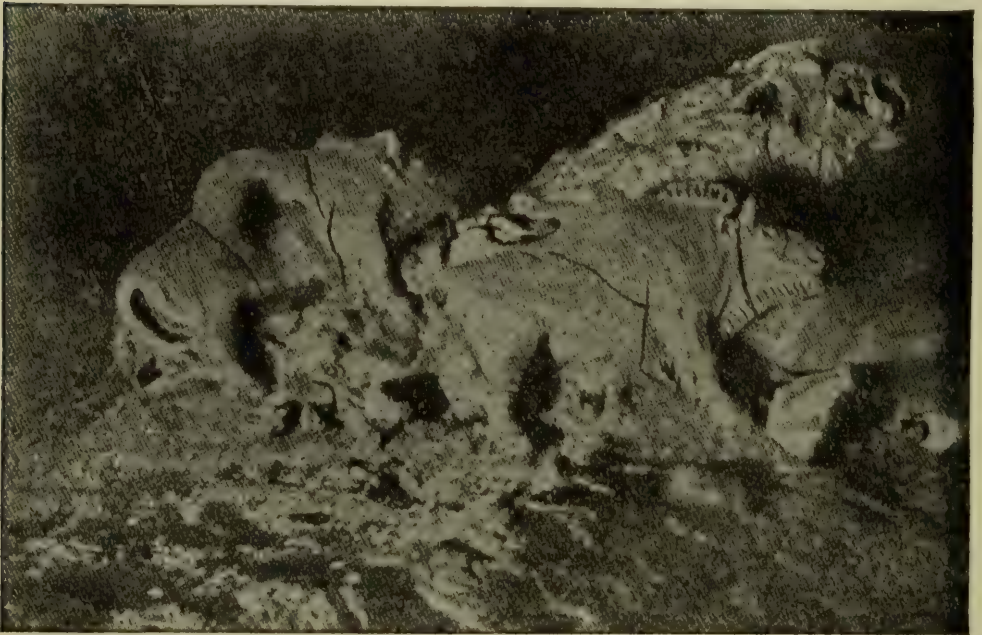


FIG. 57.—Figures of male and female bison as modeled by a Paleolithic artist; found in a French cave. About one-sixteenth original size. (After Begouen.)

The cultural achievements of Paleolithic men were, therefore, considerable. They had a considerable variety of tools and weapons in wood, bone, horn, ivory, and stone. They clothed themselves in skins and grasses, sheltered themselves in caves and pits, and warmed and dried themselves by a fire which they could produce at will, though not without considerable labor. Their bone whistles suggest some kind of group coöperation;

and their "batons of command" indicate distinctions of rank, probably with magical potency. Their feminine figurines and cave drawings are evidences of magico-religious ideas, and the use of magic in hunting and in inducing nature to be fruitful. Their disposal of the dead, as old as Mousterian times, are evidences of the idea of the soul and resurrection, while the art of the Upper Paleolithic reveals an unsurpassed æsthetic appreciation and skill of execution.

Azilian-Tardenoisian Culture. This is a transition cultural phase between the close of the Paleolithic and the coming of the Neolithic. It is marked by a considerable decline in stone industry, many Magdalenian tools disappearing, and by the appearance of very small flint points or blades, geometrical (trapezoidal) in shape. It is characterized also by greater crudity of bone and horn implements, stag horn replacing the reindeer antler as source material. Crude harpoons replace the elaborate ones of the preceding epoch. Characteristic also are the pebbles painted in conventional designs suggestive of the beginnings of an alphabet, or more probably conventionalized drawings of human beings. They were probably used for magical and religious purposes. Evidences of this culture have been found in southern France, Spain, Scotland, the west coast of Zealand (Maglemose culture), and at Ofnet in Austria.¹⁴

Neolithic Culture. While the term Neolithic, New Stone, or Smooth Stone signifies the period of polished stone culture, it should not be interpreted to imply a cessation of the arts of stone chipping developed in certain phases of the Paleolithic era. The fact is that the art of polishing or smoothing stone did not appear until long after the beginning of what is commonly called the Neolithic era. This era, in the generally accepted chronologies, begins with the introduction of definite cultural advances in other directions, notably the art of pottery making in crude form, and the bow and arrow. It was not until one or two thousand years later that the art of grinding flints with sandstone appears on the scene. The origin of this art is in doubt. It may have arisen indigenously out of the Azilian culture. In this culture

¹⁴ The student will find it worth while to study the illustrations of Paleolithic art and tools found in the works of MacCurdy, Osborn, Obermaier, Sollas, and others referred to in these pages; see also M. C. Burkitt, *Prehistory*, Cambridge Univ. Press, 1921, and Marjorie and C. H. B. Quennell, *The Old Stone Age*, G. P. Putnam's Sons, 1922.

considerable proficiency was shown in making bone chisels, awls, wedges, and needles, all of which would need to be smoothed. Experience in polishing these softer materials may have led to the application of similar methods to stone.¹⁵ On the other hand, it may have been introduced by migrants, traders, or travelers from farther east. Sir Arthur Evans¹⁶ has shown that the Neolithic culture of Crete antedates that of western Europe. It is known that there was considerable migration of tribes in Europe at this time. It seems fairly certain that those great advances mentioned above, which put a definite end to the Paleolithic era, were introduced by round-headed peoples from eastern and south-eastern Europe.

A partial list of tools used by Neolithic peoples would include the following made of bone, horn, or ivory: arrow straighteners, harpoons, fishhooks, lance points, needles, bodkins, polishers or spatulæ, throwing sticks, and wands or batons. The larger of these were often decorated with animal drawings or conventional designs. All of the Paleolithic stone implements and weapons were continued and many of them improved. Hatchets, adzes, and picks are characteristic additions, with marked improvements in hafting, or fastening to wooden handles. There was notable improvement in other cutting instruments, such as stone knives, saws, and chisels, as also in piercing instruments, such as awls, punches, daggers (poniards), lance points, and arrowheads. Tools were resharpened repeatedly, usually by the use of sandstone, a practice continued to our own times in the resharpening of sickles, scythes, axes, and knives. The Neolithic implements are strictly modern in shape and furnished the models for their more effective and durable successors in bronze and iron.

Even when the use of smooth stone implements became general, rough stone implements were far from disappearing. It is a fundamental rule of cultural evolution that old arts continue in use long after new ones have been invented, much as the scythe and the sickle are still in use, though largely displaced by the more efficient mowing and reaping machines. Among some of the existing primitive cultures, as the American Indians, relatively

¹⁵ A. L. Kroeber, *Anthropology*, Harcourt, Brace and Co., 1923, p. 412.

¹⁶ Sir Arthur Evans, *The Palace of Minos of Knossos*, The Macmillan Co., 1921, Vol. I, pp. 34-35.

few of the stone implements are ground, the remainder being rough hewn. Among the Australians smooth stone tools are exceptional. In western Europe the New Stone industry made remarkable progress. Certain places became well developed centres for the fabrication of polished stone tools and weapons. In connection with certain quarries, molds and grinding tools as left by Neolithic workers have been found. The technical advances resulted not only in greater beauty and delicacy of size and shape, but in sharper points and keener edges. Holes were bored in tools for carrying them on a thong or belt, or for fastening them to wood. There was also developed skill in the working of tougher stones than flint. We can thus see the gradual decline of the early stone age and the rise of a new and better one, partly in consequence of the pride of workmanship, and partly in consequence of the demand of patrons for the most efficient, most durable, and most distinctive products. Moreover, just as the Paleolithic tools and weapons lingered on through the Neolithic, so the latter were only very slowly displaced by those of bronze and iron. It is said that, at the battle of Hastings in 1066, "many of the English thanes died with their Saxon king, armed solely with the stone battle-axes of their ancestors." ¹⁷

As already indicated, there were associated with the Neolithic age in western Europe several important cultural advances. Kroeber¹⁸ lists as the notable cultural advances of the Early Neolithic the following: *pottery; the bow and arrow; abundant use of bone and horn; the dog; and the hewn ax*. During the Late Neolithic even greater advances were made. Here are included *the domestication of cattle, sheep, goats, pigs, and later, horses; the cultivation of grain and fruit trees; the invention of the wheel; and the weaving of linen*. All of these are well typified in an advanced form in the culture of the Swiss Lake-Dwellers. These people erected their huts on hundreds or even thousands of piles driven into the shallow waters of certain of the Swiss lakes. The drainage of the lakes and careful search of their bottoms have revealed a great variety of stone, wood, and bone implements, wheat, and barley grains, the seeds of various fruits, and, in the more recent

¹⁷ H. P. Whitnall, *The Dawn of Mankind*, Richard Badger, 1924, quoted from Pumpelly.

¹⁸ *Op. cit.*, p. 413; see also the Quennells, *The New Stone, Bronze, and Early Iron Ages*, G. P. Putnam's Sons, 1923, and J. M. Tyler, *The New Stone Age in Northern Europe*, Chas. Scribner's Sons, 1921.

periods, numerous copper and bronze implements such as fish-hooks, bridle bits, knives, safety pins, and crochet hooks. Associated with the Neolithic culture in certain areas is also the erection of megalithic monuments, in many parts of Northern Africa and western and northwestern Europe, such as that at Stonehenge, England, evidently having important religious, and perhaps also political, significance.

All of these advances are indications of the development of a rather thoroughly sedentary form of life, involving a relative cessation of dependence upon hunting and increasing dependence upon cultivation of the soil. The revolutionary importance of these transformations in economy for the development of social life and institutions can scarcely be exaggerated. They were accompanied by alterations in all the fundamental social relations. Above all they made possible a marked increase in population with a corresponding increase in the size of the local community and *the development of village life*. The walled village, which appeared in this period, and the lake dwellings are evidence that at last man had so mastered nature as to be able to procure a subsistence from a fixed locality. The increase of population and the development of village economy made possible a degree of labor specialization. It is a fundamental law of economics that the division of labor increases efficiency and productivity; it also increases social solidarity by binding different elements of the community together in mutually dependent co-operation. Priests, chiefs, medicine men, agriculturists, herds-men, and artisans differentiate within the integrated community. Such division of activities is an important condition of social advance. It increases the attrition of mind on mind, supplies an increased number of suggestions to fertile intelligences, and makes possible the ready dissemination of any improvement to all members of the community. Village life is marked by the creation of numerous household comforts. (Figure 58.)

It is presumed that many of these advances were brought into western Europe from eastern and central Europe. Pottery making, which is one of the fundamental revolutionary advances in the arts of cooking, food storage, and food preservation is much older in eastern and southern Europe and western Asia than in western Europe. A suggestion of weaving appears in the net-making of various Paleolithic peoples. The next great advance

was made when some ingenious individual learned how to stretch and twist fibrous materials into threads by means of a spindle. Weaving followed, being practiced by a variety of methods. Its advancement was associated with the cultivation of wool-bearing animals on the one hand, and the growth of flax on the other. Domestication of animals, which deeply affected the early culture of peoples of the great steppe regions of Russia and western Asia,

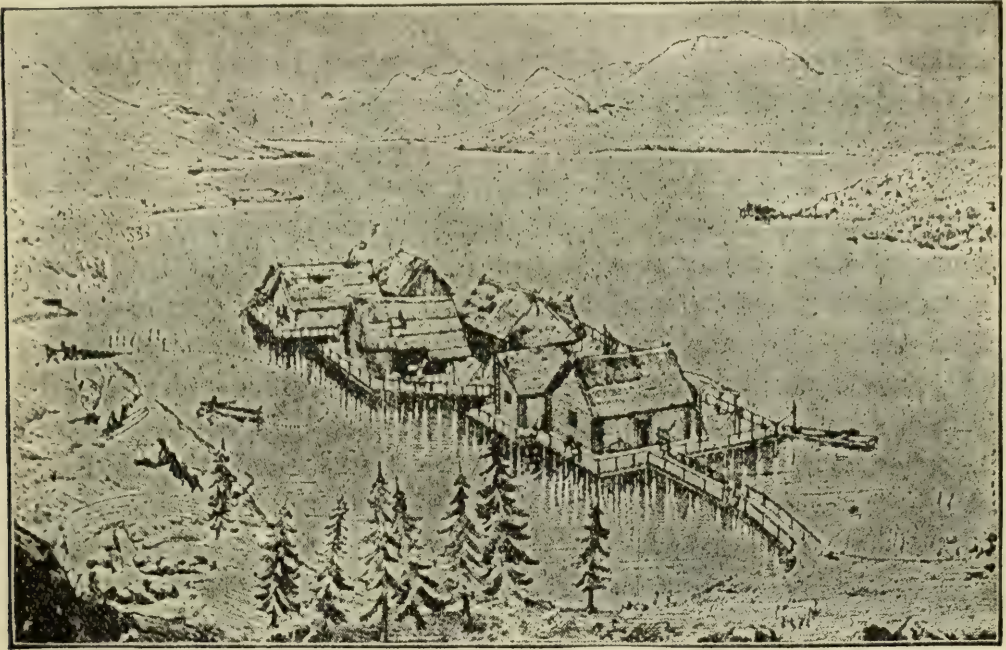


FIG. 58.—Drawing showing probable style of a Swiss lake village of the Neolithic, Bronze, and La Tène epochs. Houses with thatched roofs were built on a platform supported by piles driven into the lake bed. Note the boats and cattle. There were many such villages in the numerous lakes of the Alpine areas of Switzerland, France, Germany, Austria, Hungary, and Italy. Pile dwellings are now found in central Africa, Borneo, Celebes and elsewhere. After Tyler, *The New Stone Age in Northern Europe*, by permission.

undoubtedly occurred there before being introduced into western Europe. It is not improbable that this culture trait as well as the cultivation of wheat, barley, and fruit trees was introduced into regions about the Alps by a round-headed stock of Alpine, or proto-Alpine, type.

Mixture of Cultural Elements. In an earlier chapter we noted certain weaknesses of the orthogenetic cultural theory which assumed that there was only one definite line of cultural advancement. While we seem safe in assuming that all primitive types

began as simple hunters, they must have been forced into cultural divergence in consequence of migration into different habitats, and the resulting necessity of adapting their modes of life to new and different conditions. Thus the Eskimos of the arctic, the Veddahs of Ceylon, the Australian aborigines, the African pygmies, and the Philippine Negritos all have a Paleolithic culture, in the sense that they make stone tools and implements by chipping. But in many important respects their cultures differ widely, such as principal foods, modes of hunting and fishing, kinds and extent of clothing, types of houses, family and marriage customs, magical and religious ideas and practices, and group cohesion and organization.

So also some Neolithic peoples, such as various American Indian tribes, have no domesticated animals except the dog. Some of them cultivate grains or fruits only incidentally. Some are definitely settled agriculturists and others are semi-nomadic. The greater the extent to which sedentary life develops, the greater the development of home comforts. Thus the largely sedentary North American Indians had net hammocks, beds of mat-covered benches, earthen pots, skin rugs, bottles, wooden plates, blankets, and articles of dress for personal adornment. By contrast the migratory, wigwam-dwelling Indians were poor and miserable. Sedentary life encourages the development of varied techniques, division of labor, skilled artisanship, and attention to artistic details. This may have been one of the reasons why in ancient Egypt there developed a remarkably interesting culture before the discovery of the use of bronze.

The Ages of Copper and Bronze. The use of metals for tools and weapons began with the employment of copper in a pure state. Copper seems to have been used in Egypt before 4000 B. C., and it was in use in a relatively pure state in various parts of the world, Cyprus, China, Lake Superior region, Spain, Bolivia, and Chili long before the art of smelting it with tin was discovered. The culture which combined some use of copper with the Neolithic implements is known as the *Eneolithic*. It appeared only in areas where copper was easily mined. The oldest copper articles included flat axe-blades, leaf-shaped daggers, awls, and dress (safety) pins. The place and the time of the discovery of bronze is unknown. It was very probably an accidental consequence of using about the hearth stones contain-

ing both tin and copper. "The camp fire was in all probability the first metallurgical furnace." ¹⁹

Bronze, at first with only two or three per cent of tin, and later with five to ten per cent, appears first at Cnossus in Crete as early as 3000 or even 3500 B. C.²⁰ It appears a little later in Egypt, about 2800 B. C.²¹ It may have been imported into both regions from Asia Minor. The principal sources of tin during the bronze era were Spain and Cornwall, England. There were three centers of bronze manufacture, the oldest being the East Mediterranean, the next Spain, and the last Italy. Each drove a thriving trade in tools and weapons with far distant markets. Baltic amber has been found on the site of the second city of Hissarlik of about 2000 B. C., while celts, daggers, and pins of Syrian type have been found on the sites of the lake villages of Austria and Switzerland. Although the basic culture of western Europe long remained Neolithic, there was an extensive trade between this region and Italy, bronze swords and axes from the latter being eagerly sought. The first bronze implements seem to have reached France before 2000 B. C.; they appear in England and Scandinavia about two centuries later.

While bronze added to man's efficiency as a food producer, its greatest uses were in agricultural tools; in military weapons; in implements used in house-building, road-making, and stone-working; and in ornamentation. Among bronze implements of greatest importance were the metal plowshare, axes, poniards, lances, swords, shields, helmets, pins and needles of various shapes, chisels, gouges, awls, knives, sickles, razors, kettles, bridle bits, harness trappings, bells, trumpets, bracelets, buckles, safety pins, brooches, and numerous other articles, useful or ornamental. (See illustrations in Chapter IX, above.)

The Bronze Age is notable for a great variety of pottery, artistic in form and decoration. The invention of the potter's wheel and the concurrent transfer of pottery making from women to men occurred at this time. This period is notable also for the rapid development of the wheel, an invention which introduced a new era in land transportation. It encouraged road building, enormously increased the volume of trade, and thus facilitated

¹⁹ G. G. MacCurdy, *Human Origins, a Manual of Prehistory*, D. Appleton and Co., 1924, Vol. II, p. 176.

²⁰ Myers, *op. cit.*, p. 93.

²¹ *Ibid.*, p. 103.

the diffusion of culture. While the Neolithic peoples made use of solid wheels cut from round tree trunks and even of wheels made of several pieces of wood, there was no means of making a light wheel with spokes, until the invention of metal band or tire. This certainly constitutes one of man's greatest achievements. "Take away fire and the wheel and the world would suddenly revert to a sub-Neolithic level. By the aid of the wheel the evolu-



FIG. 59.—A wheel of the La Tène period just as it appeared when uncovered by the archaeologist. It was about 36 inches in diameter; the round, oak spokes were 12.2 inches long and mortised into the hub and the felloes of elm; the hole in the hub is 3 inches across, indicating a wooden axle; the tire was a single iron hoop, 1.6 inches wide, snugly fitted without rivets. From Paul Vouga, *La Tène*, Leipzig, Karl W. Hiersemann, 1923.

tion of civilization has gone on with a rapidity which makes all anterior progress seem slow indeed." ²² Civilization rests largely on transportation. The wheel made possible the conquest of earth, just as the boat, which in crude form preceded it, made possible the conquest of water. It led to the development of the chariot, an instrument which greatly elevated military efficiency and mobility, and was instrumental in the establishment and maintenance of political authority over vast empires. (Figure 59.)

²² MacCurdy, *op. cit.*, Vol. II, p. 150.

Considerable advances were made in the arts of building throughout the Ancient East during the Bronze Age. Metal tools greatly facilitated the development of masonry, sculpture, and architecture. The first hewn stone temple was built in Egypt only a few generations before the Great Pyramid of about 3050 B. c. Sun-baked brick were independently invented in Egypt and Assyria, while the true arch, which became a prominent feature of Roman architecture, first appeared in Babylonia before 3000 B. c.²³ In Egypt there was a notable development of geometry and surveying; in both Egypt and Assyria astronomy became somewhat of a science, while the calendar became essentially modern in form before 4000 B. c. In both these civilizations also there were carried out vast schemes of irrigation and public works showing a high development, not only of certain practical aspects of engineering, but also, and more significantly, well-knit political and economic organization, strong government, and advanced legal and judicial systems. While in Egypt all land belonged nominally to the King, there was in both that country and Assyria a keen sense of private property and a truly modern development of the laws of contract, and of the ownership, transfer, and inheritance of property.

Of immense importance in the advancement of ancient cultures was the beginning and spread of the use of metallic money. Just as the calendar made possible an exact measure of time, so money of standardized size made possible the measure of values. Copper rings for monetary purposes were in use in Egypt by 300 B. c., and copper and bronze continued for nearly 3000 years to be the principal media of exchange, though silver and gold were common by 1500 B. c.²⁴ Money has been one of the world's chief civilizing agents. Previous to its use, payments for labor and taxes were necessarily made in common articles of consumption. In this country, for example, before the establishment of a monetary system, such articles as cattle, tobacco, indigo, rice, beaver skins, and Indian wampum were used in the payment of debts. Trade is thereby restricted to occasional exchange and barter, and every community forced to live mainly within itself. Money encourages trade; it therefore stimulates a diversification of

²³ Kroeber, *op. cit.*, pp. 246-247.

²⁴ M. M. Knight, *Economic History of Europe to the End of the Middle Ages*, Houghton Mifflin Co., 1926, p. 18.

labor, arouses ambition, and diffuses culture. By making possible the payment of taxes and tribute in a universal standard of value, it makes possible the extension of political control, the unification in one peaceful domain of previously hostile and jealous principalities.

Finally among the notable achievements of the Age of Bronze may be mentioned writing. Picture writing developed as an independent invention among many peoples. It was apparently in use among the Magdalenians in western Europe fully 25,000 years ago. From it evolved the hieroglyphics of the Egyptians, who were using ink and papyrus paper as early as 3600 B. C. The cuneiform writing of the Assyrians and Chinese characters are also very ancient, but whether they and the Egyptian arose from a common stem is not certain. All these systems combine pictures and symbols of words and ideas with sound symbols. They are part-phonetic. A truly phonetic system appears first among one of the Semitic peoples, presumably the Phœnicians, about 1000 B. C., in an alphabet of twenty-two characters. Writing reacts vigorously on cultural evolution. It facilitates intercourse and the exchange of ideas. It makes possible a record of the past more accurate in form than the purely verbal, word of mouth, tradition which precedes it. There can be no doubt that one factor in the amazingly slow progress of the Paleolithic Era was the fact that all social tradition, all learning, all cultural accumulation, was necessarily stereotyped in form and possessed solely by men and women in full maturity. It was not fully acquired by any generation until the mental plasticity, inventiveness, and creative adventuresomeness necessary to modify it had been largely lost.

Obviously only a few of the notable achievements of the Bronze Age in the eastern Mediterranean region reached western Europe. The Code of Hammurabi shows that before the twenty-first century B. C. the Babylonians had achieved a truly remarkable culture, harsh and barbaric in many respects, but strikingly modern in manifold ways.²⁵ At about the same time the first bronze implements were beginning to filter into western Europe.

The Iron Age. Iron smelting is generally believed to have begun in Syria, probably among the Hittites, about 1400 B. C. There is, however, some indication that it was known to the

²⁵ R. C. Thompson, "The Golden Age of Hammurabi," in *The Cambridge Ancient History*, Vol. I, Chap. xiv.

Egyptians much earlier, since there were found in one of the Predynastic tombs older than 3500 B. C. "beads of hammered iron, in one case strung alternately with others of gold."²⁶ Iron was used in Cyprus, Rhodes, and Crete for jewelry in the fourteenth century B. C., and was sent to Egypt from Syria as a precious metal in tribute about 1250 B. C. It soon began, however, to replace bronze for cutting weapons and tools. At the same time it did not produce any such revolutionary changes in the evolution of the ancient civilizations as did bronze. Iron was in extensive use among the Greeks and the Romans, but their cultures might well have been much the same without it. Its use synchronizes with a much greater use of the horse as a domestic animal in areas of advanced civilization and with notable developments in road building, postal services, and the arts of nation building.

From about 900 to 500 B. C. the ancient salt-mining town of Hallstadt in Austria was the center of a thriving iron industry, whose products were sent east, south, and west. The archæological researches there have thrown considerable light on manners and customs of eastern and central Europe at this time. During this first European epoch of the Iron Age there were no notable improvements in the fundamental arts in western Europe, but iron swords and other weapons, articles of bronze, and other products of eastern and southern manufacture spread into central Europe over most of Germany and France. The culture of continental and western Europe during this period contrasts sharply with that of the eastern Mediterranean. "The Hallstadt culture was wholly without cities, stone architecture or bridges, paved roads, coins, writing of any sort, the potter's wheel, or rotary millstone; nor was metal used for agricultural implements. It was a time of villages, small towns, and scattered homes; of sacred groves instead of temples; of boggy roads, of ox-carts, and solid wooden wheels; of a heavy, barbaric, warlike population, half like European peasants, half like pioneers; self-content, yet always dimly conscious that in the southern distance there lay lands of wealth, refinement, and achievement."²⁷

During the La Tène iron epoch (500 B. C. to the Christian era), however, several notable advances occurred in the west.

²⁶ *Ibid.*, p. 242.

²⁷ Kroeber, *op. cit.*, pp. 424-425.

La Tène, the type station for this culture phase, is located at the eastern end of Lake Neuchatel, Switzerland. This was a period of rapid improvement in highways and land transportation. It is notable for the introduction of the iron plowshare. Iron generally replaced bronze in western Europe for swords, lances, javelins, shields, and other implements of warfare. Andirons, the lock and key, the pruning hook, the scythe, the hammer and anvil, and numerous hearth implements of iron came into use. Here we find also the first hand-mills with circular, rotating stones, though milling stones for grinding grain date from the Neolithic era. This is the period also of the introduction of the potter's wheel and of coined money. This latter greatly quickened eco-



FIG. 60.—Marks stamped on sword handles of the La Tène period. They are believed by many to have been trade marks of various makers; by others they are considered to be merely the marks placed by individual artisans on swords of specially fine workmanship. They suggest both skilled craftsmanship and the commercial spirit. (After Vouga.)

nomie life. An important domestic implement appearing during this epoch was the scissors or shears, used for cutting cloth, hair, and beard. Glass manufacture, which had begun as a rarity in the early days of the Bronze Age, now acquired some industrial importance. (Figure 60.)

These early iron ages and the dozen centuries following witnessed various advances and recessions of the level of culture in central and western Europe. There were no fresh discoveries of importance and no comforts were achieved which had not been greatly excelled several times earlier in different places; but there was much political unrest. Communication was poor and trade difficult; life was, on the whole, coarse and crude by our standards; but many of the walled towns and cities achieved a degree of

wealth and refinement. After 1200, new currents of life and ambition began to stir and notable advances began to appear.

SOME HISTORIC TYPES OF ECONOMY

The Question of Stages. In attempting to bring some order out of the multiple ways in which different social groups have sustained themselves, we meet once more the question of monotypical evolution. Have all the peoples who have advanced from savagery to civilization passed through the same series of economic stages? The answer must be both "no" and "yes." All these peoples have passed through the Paleolithic and the Neolithic cultures; they have all advanced from stone to bronze or iron tools. But this does not mean that all Paleolithic peoples have cultures that are alike. Habitat and cultural diffusion result in great diversity of the political, religious, domestic, and moral institutions of peoples who have similar economic bases. There are, in other words, certain broad *types* of material culture through which most, if not all, the peoples who have reared great civilizations have passed; but they have done so with somewhat different cultural complexes. These types may be designated as follows: (1) the collectional stage; (2) the pastoral stage; (3) the horticultural stage; (4) the stage of settled agriculture, or of village economy; (5) the stage of commerce and industry, or of urban economy. In the following sketch we use the terms "type" and "stage" as synonymous, and describe them largely from the standpoint of food production and problems.

The Collectional Stage. If we use this term broadly to include all those modes of life in which man is a mere collector of what nature provides and in no degree a food producer himself, it covers most of the time since man emerged from the apes.²⁸ It was at first a period without tools. It had greatly advanced when man learned how to put a point on a nodule of flint; with this in his hand he was able to add large animals to his food supply. Even Neanderthal man was able to overcome the great beasts of his habitat, though they were large, fierce, and varied. He also made use of fire in preparing food, though it is not certain that he knew how to make fire at will. Before the close of the collectional period, man had acquired considerable knowledge of plant and

²⁸ For an extended description, see N. S. B. Gras, *An Introduction to Economic History*, Harper and Bros., 1922, Chap. i.

animal life and considerable skill in hunting and fishing. At the lower extreme among existing races in the collectional stage are the Bushmen of South Africa, the Veddahs, the Australians, and the Negrito peoples. Distinctly higher in cultural development are the Eskimos, Northwest Coast Indians, Chukchis of Siberia, and others, having an abundance of fish and game, living in houses, and equipping themselves with a variety of implements and utensils. Long before the end of the collectional stage, various arts for the storage and preservation of food had been devised.

The Pastoral Stage. A greatly advanced type of food acquisition is characterized by the maintenance of herds of domesticated, or semi-domesticated, animals as supplements to collectional activities. The term, however, covers a very wide range of economic organizations, to say nothing of political and other cultural traits. It is obvious that, in many respects, there are wide differences between cattle raising tribes of south central Africa, cattle, sheep, goat, and horse raising tribes of many parts of Asia, and reindeer raising Lapps. The Algerian nomad counts his wealth in horses or camels, lives on milk and cheese, dates, figs, honey, berries, some flesh, and supplementary foods, especially wheat and barley secured by trade. The lowly Todas, one of the hill tribes of Southern India, live mainly on the milk of their dairy buffaloes, which they worship. Nomadic peoples must migrate with the seasons; one of the most spectacular of such migrations at the present time in western Asia has recently been portrayed in story and moving picture under the title "Grass."

The domestication of animals and the life of the nomadic herdsmen evolved naturally, in many places, directly out of the hunting stage. Grasslands obviously favored the domestication of herd animals. This is especially true of the Old World where the presence of numerous animals easily domesticated—cattle, sheep, goats, horses, camels, reindeer—and extensive steppes combined to make the development of this new type of economy easy and natural. The trait did not reach western Europe until long after the beginning of Neolithic times, or about 4,000 to 5,000 years ago.

It is probable that primitive man captured and made pets of the young of all important animals of his habitat; and yet the dog was the only domestic animal of Paleolithic man. But, as

Galton ²⁹ has shown, only a few animals combine the psychic qualities making them domesticable with physical traits which make them useful. What then are the qualities which an animal must possess in order to become established as a domestic breed? Galton held them to be as follows: (1) *Hardiness*, that is, ability to shift for itself, because an animal requiring great care would not be worth its keep. (2) *Fondness for Man*, by which is meant a tractable disposition, so that the animal does not fret itself to death when confined by man, or escape and revert to wildness; various animals, such as the reindeer, are for this reason just on the border-line of domesticability. (3) *Desire of Comfort*, or an appreciation of the security from the attacks of wild beasts which association with man affords. (4) *Usefulness to Man*, a reason which seems obvious enough; the most important use of an animal is as a store of future food, but there is also a certain pride of possession, and, in the case of the dog, a sense of companionship, aid in the chase, and protection against intruders and marauders. (5) *Breeding freely*, a trait which greatly limits the number of useful species since many do not breed freely in captivity, and some not at all. (6) *Easy to tend*, or such that large numbers can be controlled by a few persons; gregariousness is at the basis of this quality, nearly all domestic animals living in herds or flocks.

It must be remembered also that the herds of the nomad were not of the gentle, thoroughly domesticated types now found on American farms. They were rather like the wild herds of cattle and horses of our western plains a generation or two ago. So long as game was abundant, man had little need of domestic animals. He probably long used semi-wild or even wild herds (which he rounded up and guarded) as supplements to his food supply. Moreover, the full realization of the utility of various species was dependent on the state of culture. Magico-religious taboos sometimes prevented the use of domesticated animals such as the hen and the pig, for food. The horse was one of the last animals domesticated. It was hunted for food during countless generations. It was used first as a milch animal and then for riding. Horsemen had immense advantages as herdsmen, hunters, nomads, and fighters. It was only after the invention of the wheel and the plow that the usefulness of the horse reached

²⁹ Francis Galton, *Inquiries Into Human Faculty and Its Development*, Everyman's Library, pp. 173-194.

its apex. It was in fact only with the development of a settled agricultural life that the systematic cultivation of domesticated animals, with some attention to selective breeding, began.

The pastoral nomads have figured largely in the history of civilization. They have often been compelled by the drying up of water courses and pastures to find new grazing lands. On such occasions they have had the inestimable advantage of always having their commissary department with them. Their invasions have led to wars innumerable, and not infrequently to conquest; and conquest has sometimes led to the settlement of the nomads as a ruling caste over peasant peoples and the founding of historic states. The conquest of Canaan by the Jews is an example, as is also the movement of the Germanic tribes into western Europe 2,000 years ago. When equipped with horses or camels these nomads have been rapid in movement, daring and ferocious in battle, and have often moved far and left devastation in their wake. The terrorization of Europe by the Huns under Attila (died 453 A. D.) and the conquest of Asia and the invasion of Europe by the Mongols under Jenghiz Khan (1162-1227 A. D.) are striking examples of extraordinary mobility and military superiority.

The Horticultural Stage. A third rather distinct type of food economy is that based primarily on the cultivation of plants. It is designated variously as "*hoe culture*," "*garden culture*," and "*horticulture*." This is an early stage in the development of agriculture, in which the garden supplements the natural sources of food. This grows up out of the hunting and fishing life in some areas, as among such American Indians as the Iroquois, while elsewhere it has grown out of the pastoral life. Much depended on climate and the character of the plant and animal life. It seems probable that the cultivation of roots, tubers, and fruits began in forested areas, while the cultivation of grains may have first developed among peoples living on the borderlands between forest and steppe. In the New World there was a complete absence of animals suitable for domestication, but an abundance of deer, bison, and other game-food animals. The Indians could not become nomad herdsmen, but those of the eastern coast, such as the Iroquois, supplemented hunting, fishing, and the gathering of fruits and nuts with an efficient horticulture.

In view of the fact that all peoples have an intimate knowledge

of the plant life of their habitats, it may seem remarkable that some of them never attained even an elementary hoe culture. Tylor³⁰ found the answer in "insecurity, roving life, unsuitable climate, want of proper plants, and in regions where wild fruits are plentiful, sheer idleness and carelessness." The case of the Eskimos is clear; perhaps the Veddahs and some of the Negritos would come under Tylor's last category. But instead of the terms "idleness and carelessness," we may substitute individual and social inertia. The study of social evolution reveals no more amazing fact than that, whenever a social group has achieved a certain adjustment to its environment, it proceeds to sanctify the customary ways and to render any innovation an insult to both gods and men. Tylor, therefore, should have added geographical and social isolation to his list of causes.

It seems reasonable to suppose that the women among both nomad herdsmen and hunters began the cultivation of food plants. This would have introduced a stage in which small quantities of widely cultivated plant foods, corn, pumpkins, yams, tubers, and grains, were mere supplements to the main supply of foods derived from wild plants and wild and domestic animals. In favorable spots primitive hoe culture increased in importance until it became the main reliance, while hunting, fishing, and domestic animals came to constitute the supplementary resources. We thus find at various times and places a combination (1) of hoe culture and hunting, as among the Indians; (2) of hoe culture and fishing, as among the South Sea Islanders; (3) of hoe culture and domestic animals, as among many tribes in Asia and Africa. The hoe culture type of economy is, therefore, not sharply distinguished from the pastoral; their chief difference is in the amount of reliance placed upon cultivated plant foods. Moreover, it also merges imperceptibly into the next stage, when the reliance on cultivated crops has become so great that settlement in relatively permanent villages becomes possible. We may, therefore, look upon this third type of economy as a transitional phase between either a highly developed collectional economy or a pastoral economy on the one hand, and the village economy on the other.

These combinations are all associated with great advances in

³⁰ E. B. Tylor, quoted in W. I. Thomas, *Source Book for Social Origins*, Univ. of Chicago Press, 1909, p. 309.

the control of the essentials of an enduring social life. They are accompanied by a great multiplication of tools and weapons. There are also improved methods of food storage and preservation, such as the drying, salting, and smoking of meats and fish; preservation in fats; the drying of grains and fruits; burial in pits; storage in jars, baskets, and cribs built in trees, on poles, or on stakes. "Strike-a-lights" of flint and iron pyrites and fire drills had long been in use as means of making a fire. Pottery had come into use and had resulted in improvements in the cooking and the storing of food. Above all, when men learned to save a part of the herd for breeding purposes and to put aside some of this year's crop for next year's seed, they gained in control over nature and in confidence in themselves. Foresight became a social and individual virtue, and thereby the whole of life was given a rationality and security theretofore unknown. Cultivation of the soil represented a great step in social evolution in that it gradually induced man to adopt a settled life, and then compelled him to acquire habits of labor. It thus became a great stabilizer of individual habitude and social relations. The earlier stages of economy had little use for slaves, though they were not unknown among some purely pastoral folk. During the hoe culture period most of the labor was done by women among many peoples, but slavery also was not uncommon. Even with the increased emphasis on slave labor, which came in with settled agriculture, there was always a considerable body of independent peasants.

Settled Agriculture. The true horticulturalists are compelled to move their settlements from time to time, on account of the exhaustion of the soil. Under such circumstances social life still has only a slight command over the essentials of existence, population is scarce and scattered, and cultural change slow and uncertain. For further advance it is necessary to learn how to gather a more abundant subsistence from a given habitat, so as to make possible *permanent villages*. Civilization is essentially a consequence of the attrition of mind on mind amidst the ever changing and constantly pressing circumstances of life. The attainment of permanent village life, therefore, served as a powerful stimulus to human ingenuity. It made possible the beginnings of the division of labor, the diversification of products, and the growth of trade, all of which led to more wealth and more popu-

lation; the village became a town, or trading center, and finally a city, or center of world-wide commerce. This process culminated, under the stimulus of group competition and conflict, in the rapid rise of the ancient and the modern civilizations.

But, if the village is to grow into a town and the town into the city and thus become a center of high civilization, there must be a surplus of food, large and steady in volume. This increase in food quantity has resulted from two advances, new tools and improved arts of agriculture. Among the tools, the plow is most

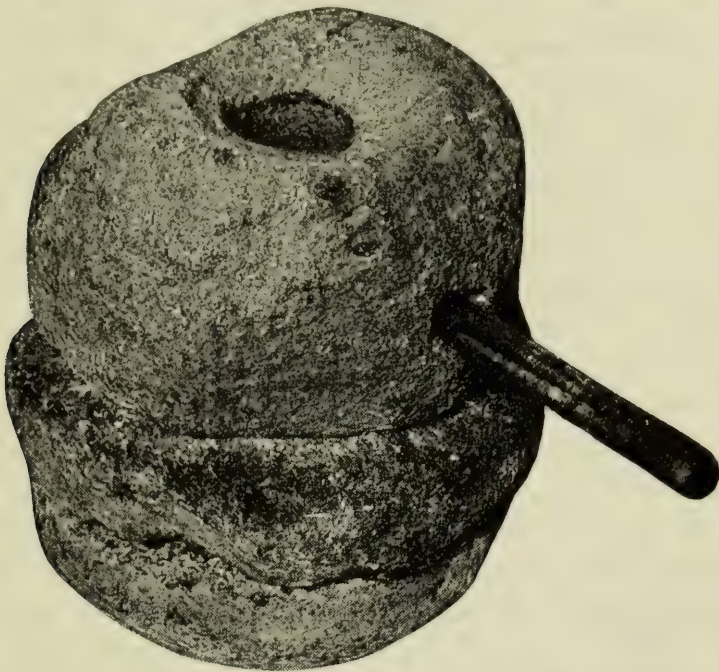


FIG. 61.—A stone hand mill for grinding grain, dating from the early iron age. When the stones were enlarged and the upper one turned by animal or water power, there was created the grist mill which endured to our own day. (After Vouga.)

important. It evolved naturally from the hoe, just as this had evolved from a crooked stick. It was only necessary to turn the hoe handle about and fasten men or women, an ox, or a cow thereto. In some cases, the first plow was of wood; in others, it had a stone blade; but its real efficiency was developed only when the cutting edge was made of iron. The plow doubtless indicates that man rather than woman had become the chief cultivator of the soil. It is very old, for without it the ancient civilizations of Egypt and Assyria would have been impossible. It greatly increased the scope for slave labor and animal power, and widened the

caste distinctions between tillers and rulers by making possible the support of a considerable leisure class. This class in turn, by devoting itself to the arts of government, law-making, and the cultivation of ethics, religion, learning, literature, and the fine arts, reared the superstructure which we call civilization. Another invention was the harrow, at first with a wooden frame with wooden teeth, and then with iron teeth, even as to-day. The sickle dates from the Neolithic stone age when small flakes of flint were set like teeth in a wooden frame, but those of bronze and iron were great improvements. The scythe followed. These instruments, together with cattle to tread the grain into the soil, made possible planting and harvesting of grain crops on a relative large scale. For threshing there was the threshing floor of hard smooth clay and the feet of cattle; later the flail, also in use even in this country until our own day. The cultivation of peas, beans, lentils, and other pulse crops, of yams and other tubers, of fruits, large and small, offered fewer difficulties, while some method of grinding or pounding grains and nuts antedates settled agriculture. (Figure 61.)

Among the arts of agriculture are included such advances as increased knowledge of animal selection and breeding; the knowledge that fresh seed, that is seed of another's growing, is often essential to an abundant yield; and new methods of maintaining the fertility of the soil. With reference to this last Professor Gras³¹ distinguishes six stages. In the first stage which antedates the settled village life, a plot is crudely cultivated until its exhaustion leads to a scanty yield, when a new one is chosen. Even the method of the early villagers is only slightly better, but has the advantage of the plow, making possible deeper cultivation of the soil and the use of cattle and sheep to graze on the stubble and scantily fertilize the ground for the next crop. These methods are familiar in the history of this country, especially on the frontier and in the early days of cotton and tobacco growing. In the next stage, the naked-fallow or two (or three) field system, the land that was used this year is allowed to recuperate one or two years before being used again. In western Europe this stage was not achieved until long after the fall of Rome. Then came the method of planting a legume crop on the fallow land as a

³¹ N. S. B. Gras, *A History of Agriculture in Europe and America*, Crafts and Co., 1925, pp. 23 *et seq.*

fertilizer. Though this method was achieved by the Romans, it does not appear in western Europe until well down in the middle ages. Then in early modern times arose the custom of "crop rotation," or using the fields every year, but so rotating grains and other plants as to prevent undue soil exhaustion. This is the present method, supplemented by the fifth type, namely, yearly replenishment with manures or artificial fertilizers. Finally, in certain advanced areas, specialized intensive agriculture has appeared, making possible immense crops of vegetables or fruits, according to climate and qualities of the soil.

Food and Recent Cultural Advances. Food is thus the prime essential, not only of individual life, but of social life and cultural evolution. Agriculture is the basic industry. On it rests the whole superstructure of civilization. The first effect of control over the food supply was to increase the numbers of people who could be maintained in a given area. The number of persons per square mile multiplied by the standard of living is a fairly accurate measure of the level of material advancement. The increase in numbers is reflected in evolution of the village into a town. Though the villagers are largely engaged in food production, a barter of goods and services springs up within the village, and between it and the surrounding country. Itinerant traders come to the village, acquiring some of its special products in exchange for those from foreign parts. The village fairs and special trading days become important agencies in the diffusion of both material and non-material cultural traits. In western Europe, the village economy reached its height in the days of the *manorial system*. Every local community was nearly self-sufficient; nearly all trade was local. Transportation facilities were meager and occupational and trade specialization rudimentary. In time the size of the population and the diversification of products, due to both geographical differences and occupational specialization, give rise to the local storekeeper, or merchant, maintaining a store of goods and making his living by serving as an intermediary between those who have surplus goods of one kind to exchange for goods of different kinds.

The village thus became a town and soon acquired diversified groups of artisans and merchants. Highways were developed as trade increased in quantity and variety, ocean transport was improved in safety and volume, and the town gradually acquired

multiple contacts with an enlarging world. In western Europe this was the stage variously called the *town economy* or the *guild system*. In all cases the manufacturing activities of the towns were at first primarily for local use, either in the town or in the surrounding villages and countryside. Gradually the more strategically located towns became centers of industry or manufacture for more than local trade. As their trade expanded and their wealth multiplied, they became centers of political power, and patrons of the arts and sciences. The rise of the Italian cities during the thirteenth century, of Amsterdam during the sixteenth, of London, New York, and other great centers of trade, politics, music, literature, and education in more recent times are illustrations. The truly amazing developments of the last century and a half in western Europe and America have rested upon the remarkable series of mechanical inventions, constituting the industrial revolution. But *pari passu* with them has gone the steady improvement in the arts of agriculture, which have made it possible for an ever smaller portion of the population to feed the whole, and to feed it with more abundant and more diversified foods of better quality. We recur to this matter below.

Chart of Stages of Economic Evolution. At various times we have indicated that no wholly satisfactory classification of cultural stages including the whole of mankind is possible. Culture rests upon a utilization or exploitation of habitat and will, therefore, vary therewith. In our study of the evolution of food-getting we found that certain stages are marked off from each other more or less clearly, but noted that there is often a mixture of traits or a great variety of combinations of cultural elements. These stages correspond roughly to those which various economic historians give as the main steps in the evolution of the material culture of western Europe: The following table includes several other classifications.³² It is inserted here because it enables the student readily to visualize the various efforts that have been made to arrive at a clearer understanding of the truly significant phases of the development of the economic basis of social life. Like all such tables it needs amplification and qualification to harmonize it with the complex facts of reality.

³² Derived in part from R. T. Ely, *Studies in the Evolution of Industrial Society* The Macmillan Co., 1903, p. 71.

ELY TYPE OF PRODUCTION	GRAS SOCIO- ECONOMIC	BÜCHER ECONOMIC- POLITICAL	SCHMOLLER POLITICO- ECONOMIC	HILDE- BRAND TRADE	TYPE OF LABOR	CHRONOLOGY IN ENGLISH HISTORY
Direct Appropriation	Collectional	Individual Search for(?) Food			Differentiation on Basis of Sex	Prehistoric
Pastoral	Cultural Nomadic	Independent Household	Village	Barter	Beginning of Slavery	B. C.
Agricultural	Village	Local Self- Sufficiency	Town	Commodity Money	Slavery and Serfdom	B. C. to 14th Century
Handicraft	Town	Town or Commercial	Territorial	Metallic Money	Free Labor Under Guilds	13th to 18th Centuries
Industrial, Factory, or Capitalist	Metropolitan	National or Industrial	State World(?)	Credit	Individual Competition Collective Bargaining	1760 to Present

As Professor F. J. Turner long ago pointed out,³³ successive phases of American development have repeated the great steps in the evolution of society from savagery to civilization. "The United States lies like a huge page in the history of society. Line by line, as we read this continental page from west to east, we find the record of social evolution." It begins with the Indian and the hunter, those who lived by the shooting and trapping of game and the consumption of fruits, nuts, and grains furnished by nature. The next paragraph tells of the era of cattle-raising, barter, the self-sufficient ranch visited by itinerant trader and peddler. Then came the village, surrounded by scattered farmers who exhausted the soil by successive plantings of wheat, corn, cotton, or tobacco without crop rotation; in many places timber was burned and this stage resembled in many respects the primitive combination of hack-and-hoe culture with hunting and fishing. There followed a gradual intensification of agriculture, crop rotation, the use of natural manures, the improvement of highways, the growth of towns and an increase in the quantity and variety of objects carried in trade and sold over the country by the merchant. Village and town shops and mills graduated into factories, as the town became a city, and as stage coaches, canal-boats, and river steamboats were supplemented and superseded by railway trains. All these transitions were accompanied by a rising crescendo of human interstimulation and response, until,

³³ F. J. Turner, "The Significance of the Frontier in American History," *Annual Report, Amer. Hist. Assn.*, 1893.

out of what were once scattered, isolated, and self-dependent communities, was built the highly integrated society of the present.

THE RISE OF MODERN INDUSTRIALISM

Character of Modern Culture. From the evolutionary view there is nothing absolutely new, but there are ever new combinations of existing elements, so as to give rise to what had never existed before. This is true of civilizations. All the basic elements of our own have existed before in varying degrees of development, but never in the same proportions. From the material point of view two traits distinguish our present social life from all others, namely, *the extent of the use of machinery*, and *the spirit of industrial enterprise*. The ancients had machines, that is, tools to which some power other than that of the artisan's hand was applied; but they were crude and neither numerous nor varied. At many times the spirit of *commercial* enterprise, that is, the seeking of gain by *trade*, has been strong; it flourished with increasing vigor in Europe from the thirteenth to the eighteenth centuries. But ours is the first era in the world's history in which *industrial* enterprise, that is, the seeking of profit by the *manufacture* of goods, became the dominating motive in economic life. It was the development of machinery which made this possible. Ours is no longer the age of merchants and merchant princes, but of "big business," the Great Industry, and industrial magnates. Ours has been an age also of democracy and of individualism in politics and ethics, and these are doctrines made triumphant largely through the development of a merchant class during the commercial era preceding the Industrial Revolution. Growing out of the factory system is the modern division of social classes, the problem of poverty, such movements for social reconstruction as Socialism and Communism, economic imperialism, international capitalism, and the future of world organization. Above all, ours is becoming an age of science; and in the long run science alone has power to enable man to control effectively the essential conditions for a durable civilization. We can here merely outline some of the steps whereby these conditions developed out of medieval society.

Preliminary Steps. During the thirteenth century there began a series of inventions destined to alter the whole character of culture, not merely materially, but intellectually and emo-

tionally. It was in this century that lived Roger Bacon, one of the earliest advocates of the inductive method and one of the first martyrs in that conflict between science and theology that has raged ever since. Arabic numerals with the zero, originated by the Hindoos, were introduced into western Europe in this century, and spread rapidly. At this time also was invented bookkeeping, an important aid in account keeping in an era of expanding trade. The production of paper, transmitted from China through the Arabs, became general in France and Italy at this time. The compass, probably having a similar history, came into general use in Europe about 1300. About the same time appeared gunpowder, another invention long known in China, but possibly invented independently in Europe; at least its formula was known to Roger Bacon. "It is rather startling to observe that the three inventions—paper, the compass, and gunpowder—which lie most immediately and obviously back of Europe's modern age all rest upon Chinese inventions."³⁴

After the invention of the printing press, about 1450,—another device introduced from China³⁵—the publication of books, pamphlets, journals, magazines, and newspapers became more and more abundant and became irresistible agents in the spread of light and learning. The compass led in 1492 to the discovery of the New World, and shortly thereafter to the circumnavigation of the globe. Thus was revealed a new earth, amazingly different from what it had seemed to men from immemorial time. About the same time the discoveries of Copernicus, Brahé, Kepler, and Galileo revealed the new heavens, and men began to think in modern terms. Gunpowder and guns altered the whole art of warfare, and changed the face of medieval society by destroying the military superiority of the mounted knight. It made the common foot-soldier the equal of the nobleman in the manly art of self-defense, and thus laid an essential basis for the growth of class toleration and the spirit of democracy.

The Commercial Era. The growth of trade during the 500 years preceding 1750 was accompanied by important transformations in economic and political institutions. This was the era of the growth of the towns and free cities, and the

³⁴ M. M. Knight, *op. cit.*, pp. 249-250.

³⁵ T. F. Carter, *The Invention of Printing in China and Its Spread Westward*, Columbia Univ. Press, 1925.

spread of the money economy. It was the era of the rise of the merchant class, a new middle class interested in peace, sound money, the development of transportation, and the abolition of feudal dues. They contrasted sharply with the landed aristocracy. The latter scorned productive labor, cherished landed estates as marks of noble lineage and social superiority, sought the retention of political power as means of control over economic resources, cultivated the knowledge and technique of war for politico-economic reasons, and interested itself in the various æsthetic arts. Its whole tradition and mode of life was based on the control of the land, for land with slaves and serfs to work it had been the chief source of sustenance and the primary form of wealth since the beginnings of settled agriculture. Among the landlords was the church, which by the close of the fifteenth century had become the greatest of them all, "an immense vested interest, implicated to the hilt in the economic fabric, especially on the side of agriculture and land tenure."³⁶ More than nine-tenths of the population were agriculturists. "The very essence of feudal property was exploitation in its most naked and shameless form, compulsory labor, additional corvées at the very moments when the peasant's labor was most urgently needed on his own holding, innumerable dues and payments, the obligation to grind at the lord's mill and bake at the lord's oven, the private justice of the lord's court."³⁷

But now new forms and sources of wealth were developing rapidly, based entirely on the gradual expansion of trade. The new era bore its first fruits in the rise of the Italian cities, which became not only thriving centers of trade with the Orient and with western Europe, but centers of learning, political intrigue, and artistic creativeness. In them we find the first foreshadowing of the modern capitalist era, both in the development of the techniques of "making money make more money," and in the first developments of organized production on more than the simple handicraft scale. The development of a money economy was enormously stimulated by the discovery of America and the great quantities of precious metals thereafter poured into the streams of commercial life. There resulted from this, in part,

³⁶ R. H. Tawney, *Religion and the Rise of Capitalism*, Harcourt, Brace and Co., 1926, p. 56.

³⁷ *Ibid.*, p. 57.

also the transfer of economic leadership to the Netherland provinces of Spain in the sixteenth century; it remained with the United Provinces, especially Holland during the seventeenth century, but was captured by England in the eighteenth. While trade remained largely local, there was an advance in the quantity, variety, and quality of goods. Town populations grew under the commercial stimulus, and local trade and merchant guilds sought to regulate all trade, native and foreign, in their own interests. Political authority remained for the most part in the hands of the landlord class out of whose villages the towns grew, but in many places the merchant guilds acquired control over law and government, either by purchasing their freedom or by force of arms. After 1500, overseas trade expanded enormously and the cities engaged in it became wealthy and powerful. The latter part of the sixteenth and seventeenth centuries were especially notable in Holland and England for the establishment of trading companies, colonies, and the organization of various trades, such as textiles, iron, mining, and banking on a capitalist basis, that is, on a basis of production for markets over a wide area.

The Revolution in the Economic Mores. The increased familiarity with money led to the rapid development of a new economic morality. In medieval theory both the taking of a profit and the lending of money at interest were denounced as unlawful and sinful. The social order was held to be fixed and immutable, and ecclesiastical rules were viewed as authorized by God. Communities were small, every man known to his neighbors, the Church was not merely *a*, but *the* society, and the duty of each to share with others was inculcated. The end of man was the salvation of his immortal soul, and the accumulation of earthly treasure denounced as both foolish and wicked. Profits and interest were looked upon as the worst forms of the deadly sin of avarice. The general acceptance of this view was aided, no doubt, by the fact that the vast majority of the population were unaffected thereby, that many of the early money lenders were Jews, and that the nobility constituted a large proportion of the borrowers and the principal market for costly imported luxuries on which profits were greatest.

But the rising tide of trade and increasing familiarity with money proved irresistible. By the fifteenth century it was com-

plained that even the priests were engaging in trade and taking usury. "Cathedral chapters lend money at high rates of interest. A bishop of Paris, when consulted by a usurer as to the salvation of his soul, instead of urging restitution, recommended him to dedicate his ill-gotten wealth to the building of Notre-Dame." ³⁸ In the community at large the logic and philosophy of money gradually displaced the philosophy of manorial estates, villages, peasants, and serfs. Even the villeins acquired the right to purchase their freedom. Money became not merely a general medium of exchange, but to a very large extent a measure of all social values. Its spirit permeated the whole fabric of civilization, for with it all things could be bought and for it all things were sold, not cattle and goods only, but virtue, political power, a reputation for justice and love of the poor, and even salvation. This complete triumph of the monetary spirit was achieved only after several centuries of increasing power, but in the end the triumph was complete, because the new bourgeoisie finally became ascendant in business, state, morals, family, and religion. There is no more perfect example in all social history of the fact that the way in which a ruling class makes its living transforms the whole of the concurrent mores. The mortal sins of medieval theory became the foundation of the sterling virtues of the new era. By 1800 it was very generally admitted that the citizens most worthy of respect were those who had acquired a competence by the methods of trade adventuring and the manipulation of money.

The distilled essence of the new middle class morality was exemplified in the Puritan. He was a man who walked daily in the sight of God and viewed this life as merely a short probation for the life to come. He was an extreme individualist in religion, for he believed salvation depended solely on grace, which was free to all who sought it. But he was also deeply interested in achieving the standard of comfort, respectability, and worldly success that the new leaders of social life enjoyed. To this end he made thrift, industry, sobriety, honesty, and avoidance of expensive luxury and pleasure the chief virtues. They were precisely the virtues that one who would accumulate wealth would usually possess, and it was only logical to assume that the extent of the accumulation was a measure of the virtues pos-

³⁸ *Ibid.*, p. 30.

sessed. It was also logical to assume that "the Lord helps those who help themselves," for the trader sees many opportunities to acquire more or less of another's wealth which would be missed if each is to be his brother's keeper in too literal a sense. Thus the ascendancy of the merchant-capitalist class was followed by the triumph of the economic virtues, a triumph which meant much for the accumulation of capital and the cultivation of respect for honest labor. Without them our complex industrial system would be impossible.

The Political Revolution. While government is commonly thought of as the agent of the "general will," it must also be thought of as an instrument of class domination. This is perfectly obvious to us, if we contemplate feudal society, but not so obvious when we are thinking of our own. Nevertheless, nothing is clearer regarding the evolution of modern political institutions than that the establishment of democratic government was a result of the rise of the middle class. The members of this class were, from the first, individualists in religion, and to them was due the major part of the social forces which carried through the Protestant Reformation. As they acquired wealth and numbers, and as the scope of mercantile pursuits widened, they demanded a government responsible to them, and responsive to their needs for new trade privileges, new laws, and new principles of jurisprudence. They thus became the backbone of resistance to the medieval doctrine of the divine right of kings, and to the traditional powers and privileges of the landed aristocracy.

In the furtherance of their demands they developed a new political theory, known as the Social Contract or the Natural Rights Philosophy. This theory grew up gradually, partly out of the conflicts in the Church Councils where it was asserted that the body of the church, assembled in council, was the supreme ecclesiastical authority; and partly out of the attacks upon the divine right of kings by nobles and burghers.³⁹ While it incorporated latent elements of the social tradition, it did not assume systematic form until the seventeenth century. This was an era during which great significance attached to the idea that natural law is an expression of Divine or Universal Reason.

³⁹ Wm. A. Dunning, *A History of Political Theories; Ancient and Mediæval*, Chaps. ix and x; *From Luther to Montesquieu*, Chaps. ii, vi, and vii, The Macmillan Co., 1902 and 1905.

This idea was derived from the Stoics through Thomas Aquinas; it had served in the days of Alexander the Great, and then of the Antonines, as a justification for the dominant political powers. In view of the great weight attaching to theological arguments during the seventeenth century, it is not surprising that numerous writers sought to prove, either that monarchy was in harmony with natural law and, therefore, ordained by God, or contrary thereto and, hence, infamous. Reverend Thomas Hooker (1586-1647), the founder of Hartford, Connecticut, gave expression to a rapidly spreading doctrine, when he declared (1638) before the Connecticut General Court that "the choice of public magistrates belongs unto the people by God's own allowance," and that "they who have the power to appoint officers and magistrates, it is in their power, also, to set the bounds and the limitations of the power and the place unto which they call them."

John Locke's *Two Treatises on Government* (1690) constitute one of the earliest systematic formulations of the new political theory. The middle class had triumphed in the Cromwellian regency and the Revolution of 1688, which brought forth the Declaration of Rights. Locke combined the ancient rights of Englishmen and the ancient doctrine of natural law into a systematic political philosophy, which became as completely dominant in the nineteenth century as was the divine right of kings in the sixteenth century. He declared in brief that all men are endowed by nature (that is, by their Creator, or the Universal Reason) with the rights to life, liberty, and property; that governments derive their just powers from the consent of the governed; that, if they do not prove satisfactory, they may be overturned and new ones set up; and that, in the determination of what constitutes the natural law and right in any situation, the opinion of the majority is final. This theory is obviously only a rationalization of the demands of the middle class for an obliteration of traditional privileges, the establishment of the freedom of trade, an increased recognition of the rights of property in its newer forms, and the control of the government itself by the new moneyed class. It fitted the times; it made deep impressions on western thought in and through the American and French revolutions. These signified the final political ascendancy of the bourgeoisie, that middle class that began humbly, despised by the noble aristocrats to whom they paid tribute, but which became so wealthy

and powerful that it made the voice of the people (or a majority of them) the voice of God, *vox populi, vox Dei*.

The Industrial Revolution. The foregoing paragraphs have briefly and inadequately glimpsed some aspects of the transformation of medieval society into modern.⁴⁰ While we have spoken of the ethical, religious, commercial, and political revolutions, and might also have dwelt on the intellectual revolution, none of these changes was sudden or brief. They were all extremely slow, marked by much hesitation and even retrogression here and there, and by interaction of one factor with another. If the rise of the theory of money affected economic morality, so the religious morality of Catholic and Protestant alike affected the theory of a just price, the condemnation of monopolies, and the limitations on the rate of interest. But all these transformations seem to bear their logical fruit in the industrial revolution. This has been more rapid than the preceding transformations, but it also has its roots in past centuries, and is still in process of completion.

The essence of this revolution may be outlined under three changes: (1) the replacement of tools and hand labor by machinery and machine labor; (2) the replacement of regulated industry based largely on the personal orders of the customer, by freely competitive production for a general market, and the acceptance of the doctrine of *laissez faire*, or the theory that the government should not interfere with the conduct of business; and (3) the utilization of scientific research as the handmaid of industry.

1. *The Machine Age.* While the latter half of the eighteenth century brought forth a number of remarkable inventions, especially in the textile industry (the spinning jenny, the power loom, calico printing, and chemical bleaching), by all odds the greatest of them was the steam engine. Factories with machines driven by foot or water power were already in existence here and there, but the age of machinery was dependent on a steady and adequate supply of power, subject to human control, locally generated, and capable of transmission by belts and pulleys to many machines in the same or an adjoining building. The steam engine thus made possible the organization of pro-

⁴⁰ For a more extended account, see Jerome Davis and H. E. Barnes (Eds.), *Introduction to Sociology*, D. C. Heath and Co., 1927, Bk. I, Chaps. vi, vii, and viii, and the parallel chapters in *Readings in Sociology*, by the same editors; also Max Weber, *General Economic History*, trans. by F. H. Knight, Greenberg, 1927, Part IV.

ductive processes on a new and vast scale. The first machines were little more than the preceding tools arranged in duplicate and adapted to the application of steam or water, rather than human, power. As it came to be realized that complicated machines, even though expensive in the first instance, produce more cheaply than hand labor equipped with inexpensive tools, an enormous amount of attention came to be given to their elaboration, refinement, and simplification. New processes of making steel followed the demand for machine tools, or machines for the manufacture of machines. The increase in productive power could not have gone far, however, without an increase in the size of the market, but this need was met by the application of the steam engine to land and ocean transportation. There followed also the development of the postoffice and the telegraph, which, with the rapid expansion of newspaper and periodical publication, made possible the swift dissemination of ideas. It thus became possible for great populations living in vast domains to be knit into highly unified economic and social organizations.

2. *Free Competition and Laissez Faire.* The history of trade shows that it is carried on among primitive peoples under numerous rigid restraints.⁴¹ Goods made by another may carry evil magic; goods from strange peoples may be offenses in the sight of the gods. Trade arose slowly out of geographical differences and differences in skill, but remained as a mere supplement to home production until almost our own day. It was, therefore, always subject to a great deal of regulation. In the medieval system this regulation was, in part, for the purpose of insuring to the purchaser a fair price, full measure, and guaranteed quality, but the guilds also sought to control all local trade in their own interests. The increasing expansion of trade during the commercial era, however, resulted in growing discontent with the local restrictions. The increased familiarity with the logic of a money economy, the wealth and influence of the middle class, and the rapidly expanding opportunities for trade over seas, not only overturned the medieval theory that life is a spiritual probation, but rendered null and void the efforts to confine trade to traditional limitations. A new social order grew up within the old and burst its bonds. Gradually there took form a well rounded

⁴¹ See Elizabeth E. Hoyt, *Primitive Trade: Its Psychology and Economics*, Kegan Paul, Trench, Trubner and Co., 1926.

politico-economic theory as the philosophical-ethical justification of the new conditions. Just as the doctrine of salvation by grace lay at the basis of religious individualism, and the doctrine of natural rights at the basis of political individualism, so the doctrine of *laissez faire* is at the bottom of economic individualism.

This theory advanced two major propositions. First, that self-interest is the ruling motive of life, and that, therefore, an individual will work hardest when working for himself. This proposition involves also the rightfulness of private property, or the inviolate right of an individual to what his labor has produced. Secondly, that there is a natural harmony between the interests of an individual or a class and those of society as a whole. Adam Smith in his *Wealth of Nations* (1776) formulated this argument in his famous statement that an individual, in seeking his own gain, "is led by an invisible hand" to promote the interests of society. "By pursuing his own interest he frequently promotes that of society more effectually than when he really intends to promote it. I have never known much good to be done by those who affected to trade for the public good."

These propositions harmonized with the utilitarian ethical principles that, from the standpoint of welfare, one man is as good as another, that every man knows his own interest best, and that, therefore, the aim of social policy should be the promotion of "the greatest good of the greatest number." They warranted the conclusion that the most beneficial type of social organization was that "system of natural liberty" in which every man is free to pursue his own interest so long as he does not encroach upon the equal liberty of others. This conclusion was expressed in the view (1) that the state should act only as a policeman, to decide disputes arising out of the conflict of individual interests, and to maintain order, and (2) that efforts of the state to control economic activities inevitably result in waste and social evil. These various principles have become deeply imbedded in the legal, judicial, and ethical framework of modern political and economic life. The security of private property and the scope of individual liberty have been largely responsible for the material advance of the last century and a half. They have, however, undergone considerable modification in order to harmonize their practical aspects with the increasing complexity of our dynamic culture.

(3) *Application of Science to Industry.* The foregoing principles let loose an enormous amount of human energy and ingenuity. Under the stimulus of the profit motive and abetted by the increasing worldliness of the human outlook, the search for sources of quick fortunes became widespread. Men were not long in seeing that the progress of the natural sciences lay back of those inventions and discoveries applicable to wealth production. The new wealth supported scientific research and the latter supplied the formulas for more wealth. Gradually every industrial activity has experienced the stimulating and rejuvenating effects of new knowledge, new machines, and new resources. What is called "scientific management" is one of the latest phases of this application of study and analysis. To-day, advertising and salesmanship are being reconstructed under the wonder-working methods of science. Economic life, and with it all other aspects of life, are thus becoming permeated with a gospel of "efficiency," a generalized product of the spirit of economic utilitarianism.

Effects of the Industrial Revolution. A detailed statement of the effects of the changes in industry on the political, legal, familial, ethical, religious, and artistic aspects of our culture would comprehend a description of modern society. Such a statement would be complete from the standpoint of a sound theory of social causation, only when it gave a full account of the endless interactions of social conditions one on another. No doubt the industrial changes were of primary significance, but they were themselves results of previous social complexes, which have continued to change and interact with them. The new industry promoted wealth and population; these reacted on industry. Industry and wealth promoted science; and science has had transforming effects on industry. This action and reaction in the social process is not lost sight of, when we list among the effects of the industrial transformations the following: (1) the growth of nationalism; (2) the transfer of major interest from commerce to industry; (3) increase of population; (4) urbanism; (5) the revival of regulation; (6) the new social stratification; and (7) first steps toward international unity.

1. *Intensification of Nationalism.* One of the pronounced political effects of the new industrial developments, very largely in consequence of the perfection of transportation and communication, was to increase national solidarity and intensify the spirit

of nationalism, by making all parts of the same political nation mutually dependent upon each other. In America the railways very largely replaced the pioneer as the forerunner of settlement, and greatly expedited the settlement of the west. The concurrent development of telegraph, telephone, newspaper, and radio have made of the nation a highly complicated social organism, of which every part is sensitive to the prosperity or adversity of every other part. Consequently, national self-consciousness with an almost inevitable egotism and super-sensitiveness in all relations with other nations affecting national rights or prestige, is an outstanding characteristic of the age. For these reasons the nineteenth century may be looked upon as the "era of nationalism."

2. *From Commerce to Industry.* Whereas the commercial era centered about trade and the activities of merchant princes, the current era centers about manufacturing and the great capitalists. This does not mean that merchandising has ceased to be a major economic interest, but rather that commercialism has become subordinate to industrialism. It becomes an appendage to the latter, rather than the ruling economic activity. The reason for this is that, with the improvement of manufacturing technique, production rather than the distribution of goods has become the source of largest profits. Whereas the merchant formerly gave orders to the producer, the great manufacturer has now added a sales force to his own organization, and become the chief advertiser. This is only one aspect of the rapid integration of industry. There has been an extensive combination of companies engaged in producing similar, and hence competing, goods. There has also been a decided movement toward the consolidation in one organization of all the processes from raw materials to finished product. The process, in fact, does not end here, but has begun to bring into existence international trusts and combinations seeking the regulation of production in given lines throughout the world.

3. *Population Growth.* But machines have done something more than integrate nations, they have filled them with people. So effective was the new industrial technique in the production of wealth that it was possible to maintain rapidly increasing populations on ever higher standards of living. While the effects of the industrial revolution, as regards the growth of population, were enormously increased by the settlement of the Americans

and other sparsely settled and rich territories, there can be no doubt that the development of the factory system alone would have made possible a truly astonishing expansion of population. The nineteenth century was notable above all other periods in human history for the increase in the numbers of the white stock of mankind. It is estimated that Europe in 1750 contained not more than 175,000,000 persons. To-day it contains 475,000,000, whereas there are some 200,000,000 additional whites in other parts of the world. Moreover, it is estimated that the standard of consumption of the average man is now four or five times as high as it was in 1800. The technical advance, which began about 1750 and which was enormously reënforced by the progress of modern science, has brought within the reach of the poorest classes comforts and luxuries that were entirely unknown even in 1850.

Some doubt has, however, arisen as to whether the recent expansion of world population can continue. In an earlier chapter we showed that, whereas the nineteenth century was characterized by an increasing social optimism, there has latterly been a considerable return to Malthusian forebodings. The outlook for the coming century is certainly not so easily utopian as was that of 1800.⁴² While it is still possible to greatly increase population on the basis of latent food resources and to reduce food waste, the time seems fast approaching when foods will become relatively scarcer and dearer. Concurrently there must be a check in the annual increase in numbers of new mouths to be fed. It is a striking fact that new civilizations have not in the past arisen in the same areas as their predecessors. Apparently the old territories were no longer able to maintain a sufficiently dense population to make possible a high state of the industrial and æsthetic arts. But now when the whole world is slowly adopting the main outlines of western culture, and when there are no new and rich areas which may serve for a successor to that culture (unless it be Russia), the time is fast approaching when there must be an adjustment of the population of the world and of its various parts to potential food supplies.

As previously indicated, there is now a very definite tendency

⁴² See references in Chapter VI; also E. A. Ross, *Standing Room Only?*, The Century Co., 1928; and W. S. Culbertson and others, "Raw Materials and Food Stuffs in the Commercial Policies of Nations," *Annals, Amer. Acad. Pol. and Soc. Sc.*, 1924.

for both national and world economy to develop a *maladjustment between population and food*. We have just seen that in all the early stages of economic development every local group is self-sufficient. With the growth of trade there is an export of surpluses of one area, largely foods, for those of another, largely manufactured articles. So long as this process of exchange is primarily within national groups, it accelerates a proper division of labor between different geographical zones. Henry Clay nearly a century ago became the champion of what he called "the American System," an economic arrangement whereby the food and raw materials of the Ohio and Mississippi valleys were to be exchanged for the manufactures of the East, to the enrichment of both sections. But, with the development of world trade on a vast scale, the advanced nations over-specialize in manufacturing and become dependent on other nations for increasing proportions of their food and raw materials.

This situation would be far less significant than it is, were it not for the fact that other nations, also finding manufacturing a profitable way to make a living in a relatively undeveloped world, tend to follow the same route. The recent war revealed the fact that Germany, Belgium, and Italy are all under the necessity of importing considerable quantities of foodstuffs. The United States, the world's greatest exporter of food products during the nineteenth century, has now reached a point where her food exports are no greater than her food imports. During recent decades her exports have consisted more and more of manufactured and partially manufactured goods, and less and less of foods. Japan has recently become more or less industrialized; her population has grown enormously, and has recently been increasing at the rate of nearly 900,000 per year; she must export manufactures in exchange for food, or face starvation. It should be obvious that not all great nations can thus acquire more people than they can feed from their own food products. As the modern industrial system spreads we may expect to see those nations that are now great food exporters, such as Russia, Siberia, Brazil, and Argentina, more and more thickly populated and less and less able and willing to export their foodstuffs and raw materials. It is, of course, possible that science will point the way to new methods of food production. Moreover, it is not improbable that the resources of tropical countries can be enormously ex-

panded. We may see, during the coming century, an increased interdependence between tropical and temperate areas. The former seem likely to become great exporters of foods and other animal and vegetable products, while the cooler areas will be given over more and more exclusively to manufacturing.

4. *The Rise of Cities.* The growth of factories and means of transportation have concentrated a larger and larger proportion of the increasing population in cities. All civilizations have been attended by similar phenomena; but they represent temporary cultural episodes in the total history of man. Moreover, the ancient cultures were identified with one or a few cities of the first magnitude, while western culture now counts its metro-

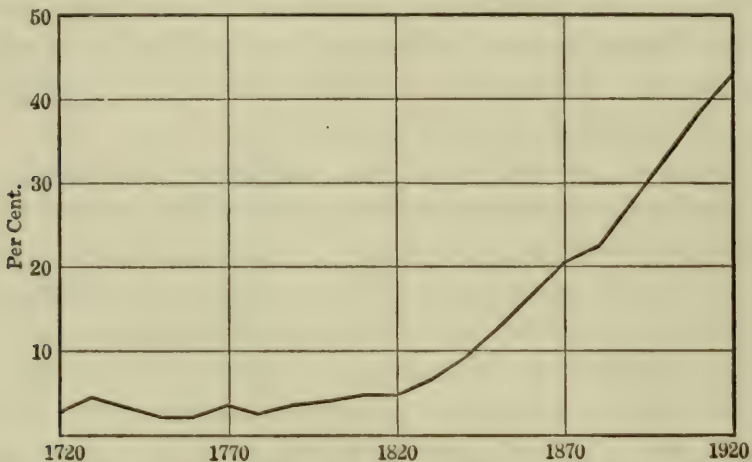


FIG. 62.—Chart showing percentage of population of the United States living in cities of 8000 and over, 1720-1920. Based on *A Century of Population Growth*, Bureau of the Census, 1909, and the *Fourteenth Census*, Vol. I.

politan centers by the hundred. In Europe alone, exclusive of Russia, there are about 300 cities, each having over 50,000 population and comprising a total of about 65,000,000 persons. The growth of cities in this country is shown in the accompanying chart. This brings out the striking change occurring about 1820, almost simultaneously with the introduction of the factory system. At no time before that date did more than 5 per cent of the population live in cities of 8,000 or more people. On that basis we should to-day have about 6,000,000 persons living in such cities, whereas we actually have about 50,000,000. This same cityward trend has occurred in every industrial nation. (Figure 62.)

Urbanism thus becomes the most obvious mark of the success

of the factory system from the standpoint of the material basis of social life. From prehistoric times the population of western Europe had been of the earth earthy. Consequently, the removal from the soil and the concentration of great populations under the artificial conditions of city life, taking place as it did with startling rapidity, gave rise to an enormous amount of social and psychic maladjustment, taking the forms of poverty, crime, prostitution, and other manifestations of human degradation.⁴³ Nevertheless, if one take as the measure of material progress the number of persons supported in a given area, multiplied by their standard of living, there can be no doubt that ours is the most prosperous era in the history of mankind. No past culture has placed within the reach of such huge populations as our own so many comforts and amusements, at so little degradation of human life and labor. Most important of all, from a broad sociological viewpoint, is the fact that urbanism is transforming the whole cast of modern thought. It forces the development of new political ideals and institutions, transforms the family and sex mores, and exerts a powerful disintegrating influence upon religious thought and practice.

The growth of urbanism tended to accentuate the contrast between city and country. By virtue of the complexity of its population composition, the intensification of competition, its contact with currents of thought and trade, and the presence within its borders of energetic, creative minds, the city becomes a center of highly dynamic social evolution. Traditional modes of thought break down amidst the conflict of ideas and cultures; established modes are subjected to rigorous competitive selection; invention is stimulated; and social sophistication proceeds apace. By contrast, the rural or village community is homogeneous in population, its people live in relative isolation, immersed in a simple routine in close contact with mother earth, and tend to retain traditional attitudes, modes of thought, and standards of valuation. In contrast with the drabness and drudgery of rural life, city life is colorful, exciting, and stimulating. The city thus becomes the Mecca of ambitious youth of both sexes. This in turn has the effect of increasing the progressiveness and variegated creativeness of the city community, while

⁴³ For a detailed study of the social effects, see J. G. Thompson, *Urbanization: Its Effects on Government and Society*, E. P. Dutton and Co., 1928.

it deprives the countryside of its natural leaders and organizers. There results a certain impoverishment of the hereditary capacities of the country population, and a concurrent stagnation of its communal life.

5. *The New Regulation.* Early nineteenth century theory assumed that there was a divinely ordained harmony between individual and social interests. This assumption constituted a firm bulwark for the theories of unrestrained competition and free contract. Experience soon showed, however, that the assumed harmony was not perfect. The introduction of the factory system was accompanied by excessive brutality in the exploitation of labor, and by the frequent flouting of the public interests for the sake of private profit. There slowly emerged a movement for protective labor legislation, for the legalization of trade unions, and for the modification of legal precedents relating to employers' liability. So far as labor itself is concerned this movement has thus far culminated in far-reaching schemes for the social insurance of the worker against such inevitable contingencies as accident, unemployment, sickness, and old age. The accumulation of wealth has been accompanied by an expansion of humanitarianism, which has sought to relieve poverty and distribute some of the benefits of material prosperity to the less fortunate classes.

Moreover, the increasing integration of society has been accompanied by a definite revival of governmental oversight of economic activities. This was made necessary in order to avoid the evolution of a thoroughgoing plutocracy. Democratic ideals have insisted that, so far as feasible, law and public policy should represent the interests of the community at large, rather than that of a special class. That there is a conflict between the interests of particular classes and the interests of society at large is shown most clearly in the exploitation of labor, and especially of women and children, in the earlier generations of the factory system. It is revealed constantly in the efforts of special interests to secure special advantages by legislation, and the perennial danger that democratic political institutions may be brought under undue control by particular classes. We have consequently had much legislation designed to prevent plutocratic excesses and monopolistic exploitation, and the development of governmental regulation of banking, insurance, all forms of transportation and

communication, and all industries engaged in supplying heat, light, and power to the public.

6. *The New Social Stratification.* Not the least important transformation accomplished by the industrial revolution was a new alignment of classes. The first, second, third, and fourth estates (lords, bishops, bourgeoisie, and workers and serfs) that loom large in the hierarchial organization of feudal society, have been replaced by a new stratification. As would be expected, this took the form determined by functions performed in the new industrial order. At the top are found the great manufacturers and bankers, and at the bottom the unskilled and casual laborers. Near the top are the great merchants and lesser manufacturers, and near the bottom are the semi-skilled workers, machine tenders, and store clerks. Between are many gradations, both by occupation and within occupations. It is estimated that a complete list of vocations would now comprise not less than 10,000. It is this complex stratification on the basis of talent, energy, education, and vocation that makes the existing social order so highly integrated and augments its stability. At the same time there are certain broad lines of class cleavage that furnish a basis for political grouping, different theories of rights and of public policy, and different programs of social reform. In this country the major differentiation is between capitalists, farmers, and workers. The capitalists are dominant, and bid fair to remain so, because there is affiliated with them the major portion of the professional classes, and large numbers of small investors and property holders. They dominate almost completely the religious and educational institutions, the newspapers, and the politicians. Moreover, our primary mores, as regards individual liberty, the rights of property, the rights of labor, the standards of individual success, and the ideals of justice, are permeated with the spirit of capitalism.

These mores are, as we have seen, changing slowly under the stresses and strains of social evolution. Meanwhile, the massing of great numbers of more or less propertyless workers in industrial centers has given rise to an organized and self-conscious proletarian movement. Its leaders have developed social philosophies of socialism, communism, and syndicalism as systematic expressions of labor class demands, just as John Locke and others put into systematic form the aspirations of

the new merchant-capitalist class two centuries ago. Whether these new theories will ever triumph, it is now impossible to say. If they do, it seems likely to be a long time in the future, and under more able leadership than the working class itself can supply. The view that modern society is divided into two classes, capitalists and workers, and that these are engaged in a deadly war on each other, is too simple, and fundamentally erroneous.

Ours is a society of unusual complexity; it has many strata, with varied interests. All parts of this complex organization are mutually interdependent to an extent never equalled in any previous civilization. Such a society is much like a highly integrated organism, in that disruption of any important function results in distress to the society as a whole. The rivalry of classes is a feature of every great society; it will doubtless go on to the end of time, regardless of the plan of social organization. But contrary to the fears of faint-hearted capitalists and the hopes of visionary revolutionists, extreme radicalism loses much of its power in a society where social ranks are so numerous and interests so highly diversified as in our own. Moreover, the democratic scheme of government provides for the constant modification of rights and privileges to keep them in harmony with majority opinion. The catastrophes of civil war and revolution can, therefore, be avoided by (1) maintaining inviolate the constitutional guaranties of freedom of speech and of the press; and (2) by preventing the corruption of government by the moneyed interests.

Moreover, the advantages of the enormous material progress of recent times have been widely disseminated throughout the population. While the extremes of income and property between very rich and very poor are probably greater than at any time in human history, the comforts of life are vastly greater and more widespread than ever before. The exploitation of labor has been progressively reduced, and the working classes have benefited by legislation, by the amazing development of mechanical equipment, by shorter hours, and by the democratization of dress, travel, amusements, and education. Such advantages would have been enormously greater, had the workers not increased their numbers with such unrestrained recklessness. There can be little doubt that the spread of birth control downward through all

ranks promises more for the improvement of the conditions of labor than any other practical plan now under discussion. Moreover, the progressive rationalization of public opinion and the education of labor render the wishful thinking of daydream Utopias less attractive, even to the working class. In fact, great numbers of the latter are themselves acquiring small investments in the great industries, and thus losing the intensity of their class consciousness.

We thus have now a society imbued with the ideals of democracy and industrialism, but one which presents much stratification and wide extremes between rich and poor. The ideals of *laissez faire* have given way to a belief in the necessity of governmental supervision and regulation; and the ideals of extreme individualism have been modified by extensive public and private effort to elevate the plane of life of all classes. We have, in fact, incorporated in our social system principles of state socialism and communism. By the former is meant the ownership and management of economic activities by the government. This we have done in the postoffice and numerous "public" works, such as systems for supplying water, transportation, and even heat, light, and power. By communism is meant "from each according to ability, and to each according to need." It is found in our schemes of education, public health, and other developmental activities of government, supported by a taxation system based largely on the principle of "ability to pay." The modification of the present social order, therefore, need not be approached by doctrinaire theories of revolutionary reconstruction. It is rather a question of the extension or limitation of principles already accepted. Moreover, it seems worth while to indicate that the main outlines of industrialism must remain. Without the efficient aid of machines and large-scale production, the huge populations of the great nations could not feed and clothe themselves. Utopia is thus to be found in the improvement, rather than in the destruction, of the industrial type of social organization.⁴⁴

⁴⁴ The literature on this and related problems is immense, but the student should not neglect the essay, "Industrial Democracy," by F. H. Giddings, in *Democracy and Empire*, The Macmillan Co., 1901; and Part IV, "Social Classes," in C. H. Cooley, *Social Organization*, Chas. Scribner's Sons, 1911. For the reactions of industrialism on political theory, see W. Jethro Brown, *The Underlying Principles of Modern Legislation*, E. P. Dutton and Co., 6th ed., 1920.

7. *First Steps Toward International Unity.* In preceding paragraphs we found some indications that a world economy is forming. Trade and transportation first intensified the spirit of nationalism, but they soon came to take the entire world for their undivided province. Following upon the growth of nationalism came the era of *imperialism*, due to a desire of the industrial powers to control the relatively undeveloped areas of the globe as markets, and especially as sources of future food and raw materials. In its earlier form the imperialism of modern nations has been *commercial*, seeking control of *markets*; at present it is becoming *industrial*, seeking control of the *sources* of such essentials as minerals, tropical fruits, fibers, and oils, and petroleum. It has been found easier to control markets by low prices than by political power; but low prices depend largely on cheap raw materials. It was commercial imperialism that put England in India and Egypt, and threatened the partitioning of China. It is industrial imperialism that has more recently been behind the diplomatic efforts of the great powers to gain control of tropical lands and the future reservoirs of petroleum. Both kinds were back of the rivalries that found expression in the recent war.

It does not seem probable that such rivalries can be so controlled as to prevent similar outbreaks in the future in the absence of a powerful and universally respected international organization, league of nations or international government, equipped with legislative, judicial, and military authority. Such a government must be able not only to decide with a high degree of impartiality between the rival claims of disputant nations, but must also have the power to put its decisions into operation, even against the desires of strong nations. It is in such problems, indeed, that centers the whole question of the permanency of world peace.

But it is not impossible that the same forces which produced capitalist imperialism will in the long run produce the surest guaranty of international peace. The very success of the industrial type of economic organization leads to surplus capital seeking investment. This surplus flows out from the capitalistic nations to all parts of the world. It flows largely to the less advanced nations, because the return upon its employment is greatest there. At this stage it has been a common source of

imperialistic aggression of strong against weak nations, as illustrated by French and English aggressions in China, or American aggressions in the West Indies and Central America. In the long run, however, these investments hasten the economic development of backward countries, raise their standards of living, and increase their populations, just as English and Dutch investments in this country hastened the development of our railroads, mines, and factories. In the end many of these territories are able to assert their independence, just as certain South American countries have already done, and just as India and China give promise of doing.

Meanwhile, two additional processes have set in, namely, the investment by several of the capitalist nations in the enterprises of each other and in the same backward nations, and the formation of international combinations including the previously rival concerns of two or more countries. The recent war showed that all of the great powers had enormous investments in each other. In some respects these have increased by huge sums in the past decade. America, in any case, now has an investment in Europe amounting to many billions of dollars and growing rapidly every year. There thus arises a mutuality of interest in the perpetuation of peace. If present tendencies continue for another century, the entire world seems likely to be so thoroughly permeated with the logic, the methods, and the products of industrial capitalism, that the era of nationalism will begin to draw to a close, and the era of a true world economy will begin. With world economy will almost certainly come world political organization, some form of world state.⁴⁵

SUMMARY

1. In this chapter we have briefly surveyed (1) the basic elements in economic life, food, clothing, shelter, fire, and tools; (2) the stages of prehistoric culture; (3) certain types of historic economy; and (4) the industrial revolution and some of its social effects.

2. Of the basic necessities, food and tools are the most im-

⁴⁵ For studies of imperialism and present world trends, see A. Viallate, *Economic Imperialism and International Relations*, The Macmillan Co., 1923; Leonard Woolf, *Economic Imperialism*, Harcourt, Brace and Co., 1920; Jessie W. Hughan, *A Study of International Government*, Thos. Y. Crowell Co., 1923; and J. A. Hobson, *The Morals of Economic Internationalism*, Houghton Mifflin Co., 1920.

portant in cultural significance. The quantity of food and the manner of its acquisition have immense effects on the numbers of the population, and hence on every feature of the social system. But the progress of invention is at the basis of food supply. From this angle, the history of culture is at bottom the history of technology.

3. The prehistoric stages were long, and advances were infrequent. Their survey suggests that man is extremely slow to learn; and that habit is the inhibitor of thought and invention. Only in our own day have research and invention become consciously recognized and widely approved social traits. But each new stage has been shorter than its predecessor, indicating that invention stimulates invention, and creates social conditions more fruitful of new ideas. It is especially true that, beginning with the later phases of the Neolithic, cultural diffusion became more pronounced; exchange of goods and ideas became more and more effective in cultural advance.

4. Of the early historic types of economy those of pastoral nomadism and settled (village) agriculture seem always to have been stages passed through by the great historic peoples. We shall see in a later chapter that the conquest of peasant populations by migrating nomads has been an apparently universal step in the evolution of the great civilizations.

5. The modern industrial era arose slowly, its roots being easily traceable to the first faint adumbrations of modern science and invention in the twelfth and thirteenth centuries.

6. The rise of the middle class, during the great expansion of trade following the opening of fresh contacts with the orient and the discovery of America, had decisive effects on the political mores and institutions. This class carried through the political and economic revolutions of the eighteenth and nineteenth centuries, and established the modern social structure.

7. Industrialism intensified nationalism by solidifying the economic structures of national groups. It thus led to the modern form of the rivalries of states, the growth of militarism, and the vigor of patriotic sentiments in modern communities.

8. It led to an unprecedented growth of population and to its concentration in great cities, thus upsetting the balance between city and country, and between the industrial and the non-industrial nations.

9. It gave rise to a new alignment of social classes. Whereas feudalism was dominated by the class owning and controlling the land, capitalistic industrialism is controlled by those who own and control money and credit. Among the new classes is the propertyless, but now self-conscious, laboring population. This has developed various schemes of social reorganization,—trade unionism, socialism, and communism,—all more or less utopian in character. But the modern state has incorporated principles of socialism and communism and legalized trade unionism; and the workers are more and more frequently becoming property owners in the form of industrial stocks and bonds. These movements tend greatly to weaken the force of revolutionary doctrines.

10. Industrialism led to a new type of imperialism, due to the investment of capital by the advanced nations in those less developed, and the effort to protect such investments by political means. This movement has resulted in a very rapid and forceful diffusion of western culture to all parts of the earth, and points very strongly to the gradual emergence of some kind of world unity.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. Compare the population per square mile of territory in different types of economy.
2. What are the most important differences in the economic basis of our own and the ancient civilizations?
3. Does economic security alone guarantee the permanency of a culture?
4. Is modern life more stereotyped, uglier, and less romantic on the whole than that of our great-grandparents, or that of the Middle Ages?
5. Are we likely to enter a period of de-urbanization?
6. How has the rise of imperialism affected political ideas, the family, government, and religion?
7. What rôle has science played in the growth of industrialism?
8. How has industrialism reacted on the growth of science?
9. How would you account for the rise of socialism?
10. Is it true that human nature is out of harmony with communistic assumptions?
11. What is meant by "the economic interpretation of history"? Is it a sound view?
12. What policies seem most likely to elevate the social life of the working classes?
13. How would you account for the development of imperialism in this country?

14. If imperialism will result in the economic unification of the world, is it thereby justified?

15. How will the growth of international investments affect public opinion and foreign policy in this country?

SUGGESTED READINGS

BARNES: in Davis-Barnes, *Introduction to Sociology*, Bk. I, Chaps. 6-8, pp. 104-187.

BROWN: *The Underlying Principles of Modern Legislation*, Chaps. 5 and 6, pp. 156-220.

CASE: *Outlines of Introductory Sociology*, Chaps. 8, 9, 14, and 15, pp. 163-200 and 283-326.

DAVIS-BARNES: *Readings in Sociology*, Bk. I, Chaps. 6-8, pp. 95-283.

GRAS: *A History of Agriculture*, Chap. 1, pp. 3-21.

HAMILTON: *Current Economic Problems*, pp. 57-73 and 96-123.

KROEBER: *Anthropology*, Chaps. 6 and 14, pp. 137-179, and 393-439.

OSBORN: *Men of the Old Stone Age*, Chap. 6, pp. 456-502.

THOMAS: *Source Book for Social Origins*, pp. 399-404 and 426-435.

VIALATE: *Economic Imperialism and International Relations*, Chap. 4, pp. 92-101.

ADDITIONAL SELECTED REFERENCES

GRAS: *An Introduction to Economic History*, Sections 15, 22, 33, and 37-42, pp. 39-42, 79-85, 161-169, and 181-269.

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CHAPTER XII

MYTH, MAGIC, RELIGION, AND SCIENCE

THE POINT OF VIEW

Special Difficulties of the Subject. It will be readily admitted that the achievement of a strictly objective or scientific attitude toward religious phenomena is extremely difficult to attain. There is no field of sociological study where the pitfalls of bias and emotional predilection, both for and against, are so great. It seems to be a fundamental psychological law that men have the deepest emotional reactions concerning the things which they believe and the greatest emotional indifference concerning the things which they know. Now religion and magic, including as they do the relations of individuals to mysterious forces and beings, necessarily rest on belief rather than knowledge. Indeed, religion is so much a matter of emotional attitudes that many people seriously object to its scientific study, as tending to weaken faith and destroy the religious values themselves. In so far as these values consist in the emotional states associated with religious ideas and practices, there is doubtless some truth in this. But such objection can be made only by those who accept the particular emotional values affected. The Christian missionary has, as a rule, not hesitated to undermine certain beliefs of heathen peoples, however deep the emotional attachment thereto. Moreover, such change in emotional states would not warrant the student in abandoning or avoiding an analytical study, any more than the fact that psychology may destroy some of our illusions about ourselves would warrant us in abandoning its study.

There is another reason why religious ideas are so fraught with emotional power, namely, that religion is a primary social force. We shall try to show later that religion is closely related to man's gregarious nature and a fundamental agent of social control. Among most peoples, certainly among all but the most highly civilized, religion stands close to the elemental forces of social cohesion. It constitutes a powerful reënforcement of social solidarity. Every social group consequently takes its religion very

seriously. Whether we view primitive tribes or civilized nations, that which is sacred is that which is hallowed by religious sentiments. Criticism or analysis of such things appears to believing souls an act of sacrilege. In this respect religious beliefs share honors with beliefs relating to sex and patriotism.

Another source of difficulty will appear as we progress in our study, namely, that the phenomena of magic and religion are so voluminous and so diverse in outward forms that even the most gifted students have not as yet been able to reduce them to universally accepted categories. Their origins are, like those of other social institutions, lost in the unrecorded past, and can, therefore, be arrived at only by logical reconstruction from what is now found among primitive peoples. When these are studied, much difficulty is experienced in separating the magical from the religious, and both from other social phenomena. The student must not expect a perfectly clear and final solution of all the problems involved. What is set down here is merely an introduction to a vast and complex subject.

These difficulties are greatly enhanced by the mystical elements involved in both belief and experience. Religious experience takes on quite different meanings according as one does or does not believe in spiritual beings. We can easily attain considerable objectivity toward primitive beliefs, because the gods and devils of primitive theology are seen by us to be fictitious. While this fact sometimes confirms the believer in the essential soundness and superiority of his own theology, it gives all who are willing to take it an objective, comparative point of view. In that way much, though by no means all, the difference in mental slant of the believer and the non-believer in spiritual powers can be eliminated. It is for this reason that much space is devoted to primitive ideas in the following pages.

The Sociological Approach. The sociological view is necessarily that of objective analysis and comparison. It studies the origins, evolution, and social rôle of religious ideas, rituals, and organizations. It views these things as the products of human psychology and social life, and as factors in social control and evolution. It views them as *purely natural* phenomena to be accounted for in terms of cause and effect like any other objects of study. Moreover, it takes into account the general aspects of magical and religious phenomena, with little specific reference

to the ideas and practices of one's own time and place. The validity of religious concepts, especially the validity of the theological theories with which religion is usually associated, is a matter of secondary importance to the sociologist. In the course of his history, man must have believed at some time or other in many thousands of spiritual beings and magical forces. That these would tend to nullify each other so far as their genuineness or reality is concerned is obvious; but that makes them none the less real to the believing soul, and none the less important as social creations. They constitute cultural phenomena of great importance. At the same time we shall find that, in spite of the outward diversity of religions, the essence of religious attitudes and the social rôle of religious institutions and practices are everywhere much the same. The reality of religious experiences in their subjective aspects is not to be doubted. It might even be argued that the social value of religion is not dependent on the real existence of the spirit forces posited in its theologies. In any case, we shall see that very similar psychic attitudes are evoked by purely secular social institutions.

NATURE AND ORIGINS

General Character of Primitive Mentality. At the outset of any inquiry into the nature and origin of magic and religion, we are confronted with the question whether the mind of primitive man worked in ways strictly comparable to those of our own. As to this there are two directly opposed views. The English anthropologists, Tylor, Spencer, Frazer, Marett, Malinowski, and others, have quite uniformly held that there is a fundamental unity of the human mind everywhere. As Herbert Spencer¹ says: "Our postulate must be that primitive ideas are natural, and, under the conditions in which they occur, rational. . . . The laws of thought are everywhere the same; given the data as known to him, the primitive man's inference is the reasonable inference." From the standpoint of psychological process, the English view stressed the importance of association of ideas. That is, it found the explanation of many strange notions in the chance conjuncture or sequence of events, or in the recognition by the savage of similarity or dissimilarity. Thus the primitive could readily believe that eating the heart of a lion or tiger

¹ *Principles of Sociology*, Part I, Chap. viii, Sec. 52.

would make him strong and fierce, while the heart of a chicken would make him weak and timid. This is, however, a universal trait. A modern student writes: "In the track meets at school I used to wear an old red jersey which I borrowed because, so far as I knew, the wearer had never lost an event." ²

A quite different view is expounded by the French anthropologists, Durkheim, Lévy-Bruhl, Mauss, and others.³ They point out that, while we see the world as the scene of operation of natural causes, the savage entirely neglects such causes. He sees in the world the operation of occult and invisible causes exclusively. These authors point out that the primitive man shows a great indifference, amounting almost to aversion, to abstract thinking and logical analysis of the scientific sort. He has a narrow range of intellectual interests, but shows keen powers of observation in all that seems to him important. This narrowness of interest and indifference to what we call intellectual problems, the French school explains as due to the type of social mind or tradition in which the savage is immersed. This teaches him to see all things as the manifestation of mystical forces and entities. The whole of primitive thought comprises innumerable such agencies, and they constitute the sole causes of whatever happens.

If now we use the term "collective representations" to designate the ideas and beliefs which are handed down from one generation to the next, the French school says that our own are scientific, or logical, whereas those of primitive man are mystical, or "pre-logical." Reality, for us, is the tangible world of natural cause and effect; and all our thinking is governed by the assumption of uniformity in natural causation and the sufficiency of natural causes to produce whatever occurs. To the savage, the occult forces, though always invisible and intangible, are nevertheless the real causes behind all the important events of life. "The reality surrounding the primitives is itself mystical. Not a single being or object or natural phenomenon in their collective representations is what it appears to be to our own minds." ⁴ "We cannot rid their minds of the belief that an infinite number

² A. M. Tozzer, *Social Origins and Continuities*, The Macmillan Co., 1925, p. 256.

³ Émile Durkheim, *The Elementary Forms of the Religious Life*, The Macmillan Co., 1915; Lucien Lévy-Bruhl, *Primitive Mentality*, The Macmillan Co., 1923, and *How Natives Think*, A. A. Knopf, 1920.

⁴ *How Natives Think*, p. 38.

of invisible beings and actions are actually real. Wherever observation has been sufficiently careful and prolonged, it has revealed the existence of an almost illimitable field of group ideas relating to things not perceptible to sense, such as invisible powers, spirits, souls, *mana*, and so on. . . . The primitive makes no distinction between this world and the other, between what is actually present to sense and what is beyond. He actually dwells with invisible spirits and intangible forces. To him it is these that are real and actual.”⁵

The basic quality of primitive thought whereby these attitudes are explained, Lévy-Bruhl calls “the law of participation.” This he himself finds difficult to define, but by it he seems to mean the bland assumption by the savage that a thing can both be and not be at the same time, or that it can be two different things at once. Here are included all the marvelous transformations which primitive thought assumes. Inanimate things can turn into animate, plants into animals and *vice versa*, and all of these into man; man, again, may be transformed into a being or object of any description, and spirits and gods may assume the forms of any of these or of men.⁶ When a Bororo Indian says he is a red parakeet, he means literally what he says, for he thinks of himself as sharing mystical properties possessed by his totemic animal and thus as being identical therewith. A man’s name, his photograph, or his effigy, are to all intents and purposes himself. Likewise power and qualities are transferred from one object to another in a thoroughly mystical manner by contact, sympathy, and imitative or symbolic transference. The possession of a lock of hair or the nail pairings of an individual gives power over him; a man’s success in war or the chase depends largely on what his wife does in his absence; an abundance of fish, fruits, vegetables, or rain depends on the performance of certain rites by appropriate persons.

These two theories regarding primitive mentality are not so completely opposed as is commonly assumed. They really express different aspects of the same thing. The English school very correctly insists that there is a generic similarity among the mental powers and processes everywhere. They admit the delusion and the illusion, the crude childishness of many primitive

⁵ *Primitive Mentality*, pp. 31–32.

⁶ A. A. Goldenweiser, *Early Civilization*, A. A. Knopf, 1922, pp. 232–233.

ideas, but they insist that these do not prove the savage mind to be illogical. If the native reaches wrong conclusions, it is because he misapprehends the facts and has wrong assumptions at the basis of his reasoning. The English school explains these errors by the theory that erroneous associations of things and ideas are made in the first place. The complete absence of any knowledge of natural causation led man, in the first stages of thought, into erroneous conceptions of reality and unscientific assumptions as to how things come to pass. In this way, he peopled his world with an endless variety of spiritual and magical potencies.

We may thus say that the English school sought the origins of primitive error, and found it in the superficial associations of things in individual minds. Through communication these views soon became group possessions. That is, they became the "collective representations" of the French school. Thereafter, all subsequent generations shared them. Moreover, as the French school points out, these collective representations are charged with a vivid emotion. It is by means of them that the mystery of the universe is both understood and controlled for human welfare. Here is one of the reasons why primitive thought is extraordinarily conservative; why it permits little individual variation from accepted modes. On the contrary, failure to believe the tradition, or to execute the prescribed ritual with painstaking exactness, may bring disaster to both individual and social group. "The savage depends on the group with which he is in direct contact both for practical coöperation and mental solidarity to a far larger extent than does civilized man."⁷

We may now summarize this very inadequate discussion of primitive mentality. The most important fact is that primitive thought differs from our own, not because the brain powers are essentially different in either quantity or quality, but because the nature of reality was misapprehended from the very first. This we should readily understand, when we remember that what we call the scientific view is extremely recent in our own tradition. Given primitive man's assumptions, his conclusions were rational. If, however, we mean by the term "logical," that conclusions are reached by processes in harmony with modern logic and modern

⁷ B. Malinowski in *Science, Religion, and Reality*, ed. by Joseph Needham, The Macmillan Co., 1925, p. 24.

scientific methods, then primitive man's thinking was "pre-logical" or "a-logical" in large part. So also is much of the thinking in our own society.⁸

In the second place, we may emphasize the collective aspect of primitive thought. Primitive culture is more homogeneous for a given tribe than our own. The group life has a greater ascendancy over individual life. This is markedly true of tribal societies, as also of small, isolated, and backward communities in this country. This explains many of the qualities stressed by Lévy-Bruhl, the conservatism, the high emotional quality, the indifference to alien viewpoints.

In the third place, there can be little doubt that the French school exaggerates the situation when they hold that primitive man never arrives at the common-sense view, that his entire world is mystical. Professor Lowie⁹ says: "Closer attention to the usages of savage life demonstrates beyond possibility of doubt that, in grappling with the problems of everyday life, primitive man often employs precisely the same psychological processes of association, observation, and inference as our own farmers, engineers, and craftsmen." What we call scientific knowledge has grown slowly; it is still meager in comparison with the vast array of things still to be known, or with the mountains of ignorant superstition still believed by some. Primitive man had little truly scientific knowledge, but he did possess a considerable fund of practical knowledge and effective technique. Long ages ago he learned to chip and polish stone; make implements of stone, bone, and wood; hunt and fish; cultivate certain plants; make fire; cook; build shelters; make clothing; and otherwise carry on that daily round of activities essential for existence and social life. In all these, he showed a certain confidence in the regularities and uniformities of nature, in spite of the fact that he mingled his magic and religion with most of them. Speaking of the Melanesian, Professor Bronislaw Malinowski¹⁰ says: "Whenever he has been taught by experience that effort guided by knowledge is of some avail, he never spares the one or ignores the other. He knows that a plant cannot grow by magic alone, or a canoe sail or float without being properly constructed or managed, or

⁸ Goldenweiser, *op. cit.*, p. 386.

⁹ *Primitive Religion*, Boni and Liveright, 1924, p. xv.

¹⁰ *Op. cit.*, p. 34.

a fight be won without skill and daring." The same author also notes ¹¹ that, "It is most significant that in the Lagoon fishing, where man can rely completely on his knowledge and skill, magic does not exist, while in the open-sea fishing, full of danger and uncertainty, there is extensive magical ritual to secure safety and good results."

The Mystery in Things. If we try, in imagination, to place ourselves in the position of the first men, we shall have to divest ourselves of our own world-view and imagine ourselves devoid of all knowledge and all mental prepossessions. How then would we explain the phenomena of life and the world round about us? Primeval man must have felt his impotence in the presence of the forces of nature,—heat, cold, rain, wind, lightning, thunder, volcanic fires, mountains, oceans, deserts, wild animals, poisonous snakes, insect pests, and a thousand other visible and invisible terrors. Ignorance implies mystery and breeds fear. In consequence of his mental powers, it was inevitable that man should formulate some theory regarding things. Thus out of mystery arose theology; then followed efforts at control, enforced by an ever-present fear of fateful happenings.

Life Imbued with Luck. When Colonel Lindbergh made his marvelous flight to Paris, many attributed his success in large part to good luck. By this they meant that he was favored by various factors which were not entirely within his control, such as the weather. This in no way detracts from his unparalleled feat, for he used all the knowledge available and worked indefatigably to have everything in as perfect condition as thought and effort could put them. That he "took large chances" is shown by the fact that many other expert airmen failed. But it is not only in such spectacular affairs that luck is a factor. A baseball game may be lost through a single error, or won by a single "lucky play." A person may stumble on his own stairway and die of a broken neck. An investment may go wrong for any one of a dozen unforeseen contingencies. A life career may be ruined by a chance misstep. The life of man is thus impregnated with an element of chance, or luck. There is an incalculable factor constantly hovering about every human venture. So numerous and so complex are the varied circumstances which affect all we do that even the greatest care and foresight may

¹¹ *Ibid.*, p. 32.

lead to disaster, while sometimes great success may attend little effort.¹²

This luck element looms larger in the minds of the ignorant than of the informed. Whatever is, in a given state of knowledge, inexplicable in common-sense terms, may be due to luck. To the primitive mind, the scope of the aleatory, or luck, element is, therefore, enormous. Unless we see that one event follows another in a chain of natural cause and effect, not only is there mystery, but the way is opened for the theory that any event may follow any other. And yet, in the primitive man's world there is no such thing as an accident; everything has a cause. All things are due to the benevolent or malevolent intention of spirits, or of persons using magical power. As we saw in Chapter I there are only two possible explanations of anything; it was inevitable that the supernatural should precede the natural in the evolution of thought. Even now we commonly make ignorance and superstition synonymous with the absence of scientific and realistic understanding. Such absence compels the mind to fall back on superficial explanation. Good and bad luck signs still lurk more or less furtively in the background of our tradition. The mind tends strongly to attribute some causal connection between things that occur at the same time, or in close succession. Even among persons of education and high intelligence, there is often found a degree of emotional response and of psychic compulsion about such common superstitions as knocking on wood, Friday the thirteenth, four-leaved clover, black cats, and similar signs and symbols. Even when they are viewed more or less as jokes, they still sometimes arouse special attention on the faint suspicion that there may possibly be some slight significance to them.¹³

We may thus see in magic and religion methods of controlling the mystical agencies which determine good and bad luck. Primitive life is filled with ceremonies, rituals, charms, and taboos as means of regulating the operation of the luck element. Whatever was done, even in the manual arts, must be done in prescribed order, with careful attention to the traditional ritualistic accompaniments. Any departure from the customary, the safe though narrow way, was fraught with ominous danger. It was

¹² W. G. Sumner, *Folkways*, Ginn and Co., 1906, pp. 6-7; also W. G. Sumner and A. G. Keller, *The Science of Society*, Yale Univ. Press, 1927, Vol. II, Chap. xxi.

¹³ Tozzer, *op. cit.*, "Appendix."

"tempting fate." Two facts made the aleatory factor more impressive to the primitive. It is true of him, as of us, that misfortune makes a deeper impression on consciousness than fortune. The dangers, privations, and fears of bad luck are more vivid and longer remembered than the security and comfort of good luck. This psychological fact is doubly important in primitive life, as it is among the poor, because of the tenuous hold upon life. "Upon the primitive stage, mischance is the more significant because men live, so to speak, on the edge of existence where it does not take much to shove them over."¹⁴

From all this it follows that the chief service rendered by magical beliefs and practices, by medicine men, by religious beliefs and practices, by priests and household gods was to give timid and fearful man a certain feeling of confidence amidst the changes and chances of the world about him. Even in our advanced and highly scientific culture they still render these same services to a large proportion of the population. So much is this the case that periods of stress and strain, of economic depression, of accident, or of war, are periods of renewed faith and religious fervor, while periods of peace and prosperity are periods of doubt and skepticism. Even the ancient prophets noted this tendency of peace, wealth, and the consequent sense of security to win the people away from reliance on God.

Natural and Supernatural. But it would be a mistake to assume that aboriginal peoples make the same distinction that we do between the natural and the supernatural. So extensive is the realm of the mystical in their mode of thought that what we call the supernatural view comprehends all things, or nearly all. This is a result of the absence, or nearly complete absence, of the principle of natural causation in their theory of things. Since all the final causes in their philosophy are mystical, and they know little of what we call natural causes, there is little place for what we call a purely "natural" event. Nor is there such a thing as a chance event in our sense of the term. What we call luck is, therefore, due to the operation of the prepotent occult forces which bring all things to pass. Misfortune, in the native view, is not an accident, but due to some invisible power. Sickness and death are not natural, in the sense of being due to natural causes, but are the result of divine anger or of witchcraft instigated

¹⁴ Sumner and Keller, *op. cit.*, p. 738.

by an enemy. If a man is bitten by a snake, seized by a crocodile, killed in battle, it is because he has been bewitched. Hence there is no effort to find antidotes for the snake's poison, or to fence off watering places from crocodiles. The true remedy is some kind of counter magic.¹⁵

Ordinary and Extraordinary. While the savage does not make our distinction between the Natural and the Supernatural, he does distinguish the usual from the unusual, the ordinary from the extraordinary. Professor R. H. Lowie¹⁶ says: "In every society, no matter how simple it may be, there is a spontaneous division of the sphere of experience into the ordinary and the extraordinary." This distinction is vaguely defined on the borderline between the two, but sharp and decisive at the extremes. In the view of Lowie and others, the distinction is purely a matter of emotional experience. This is a thoroughly plausible view. Whatever has the ability to arouse in him a thrill of expectancy, awe, or wonder is endowed by the primitive with qualities akin to our own supernatural. Whatever gives no thrill belongs to the common, the ordinary, the natural. But the scope of the extraordinary is very large in primitive thought. It tends to permeate even work-a-day affairs. The primary concerns of primitive man, as indeed of all men, center about the propagation and preservation of life. He has a deep and permanent interest in food. The phenomena of birth, puberty, marriage, sickness or injury, and death stir his emotions as do no other experiences. It is about them, therefore, that cluster most of the activities and ideas which constitute his magic and religion. "Both magic and religion arise and function in situations of emotional stress."¹⁷ Lévy-Bruhl remarks:¹⁸ "The unusual may occur with comparative frequency, and the primitive's disregard of secondary (*i. e.*, natural) causes is, as it were, compensated by an ever-alert attention to the mystic meaning of everything that strikes him. Therefore, observers have frequently remarked that the primitive, who, properly speaking, is astonished at nothing, is nevertheless very emotional. His absence of intellectual curiosity is accompanied by extreme sensibility to the appearance of anything which takes him by surprise." Even rare events, such as the birth of twins or

¹⁵ Lévy-Bruhl, *Primitive Mentality*, Chap. i.

¹⁶ *Op. cit.*, p. xv.

¹⁷ Malinowski, *op. cit.*, p. 80.

¹⁸ *Primitive Mentality*, p. 57.

the eclipse of the sun or moon, do not arouse curiosity, but are accepted as signs of impending misfortune, and followed by the rites prescribed by tradition for avoiding the indicated fate.

Thus, events that are abnormal or unclear in import and at the same time fraught with special significance for his welfare are sources of apprehension. It is their ability to arouse emotions of special import that give them a special character and value. This is true also of objects associated with striking events, of the mysterious forces causing the events, and of various signs and symbols of special import. They come to constitute the realm of the Sacred, the Holy, the Divine.¹⁹ They become *taboo*, that is, are set apart as constituting a realm which one invades only at great risk. Their sources are the invisible but wonder-working and prepotent powers which control human destiny, meting out both joy and sorrow, happiness and misfortune.

The content of this realm of the extraordinary, or the supernatural, varies greatly from people to people. So important is one's social tradition and the psychological conditioning during childhood in relation thereto, that any object in nature, any sort of symbol, any kind of god or devil, can become the source of those emotions which indubitably indicate to their possessor that he is in the presence of the magico-religious. It is not merely the ideas and symbols of divinities which arouse these emotions, but any object, act, symbol, or idea, which has acquired the proper psychological associations. To many people, "the dark" brings on such emotions. A child may thrill with mixed emotions of fear and amusement at his father turned bear or lion. One may see in this the basis of many of the tricks, disguises, and antics of the medicine man. Much of our sex instruction produces emotions of awe and mystery, a sense of taboo, of apprehension, which gives it an authentic connection with the mystical. Social institutions likewise tend to acquire a sacred quality through social tradition and psychological association. Here are included great personages, as chief, king, president, or dictator; great documents, as the Constitution; great bodies, as the Supreme Court; primary groupings, such as home, college, or fraternity; or capital places, such as Mecca or Jerusalem. Moreover, the symbols of all of these likewise convey the proper emotional thrill.

¹⁹ Lowie, *op. cit.*, p. 322.

It would be difficult to distinguish the attitudes of a devout Indian towards his totem, the visible symbol of his living god, and that of the ardent patriot toward his flag, the symbol of his country's greatness, glory, and power.²⁰ Thus social tradition can create, in the minds of those who uncritically accept it, the emotional attitude which sets anything apart as having some connection with the fateful forces controlling human destiny.

Kinds of Mysterious Powers. In general, there are two kinds of mysterious powers, the impersonal and the personal. To the former the name *mana* is now commonly given by ethnologists, this being the term used by the Melanesians. The North American Indians used the terms *manitu* (Algonquian), *wakan* (Sioux), and *orenda* (Iroquois), to designate the same force or "*medicine*." *It is conceived to be a mysterious, wonder-working force that operates mechanically and is capable of producing physical effects.* Medicine men possess it and control it; tabooed objects also possess it and can release it; an idiot or a genius, being abnormal or extraordinary, possesses it. Charms, amulets, and fetishes are instruments for warding it off, or securing its operation. Obviously, it is a convenient means for explaining a vast array of happenings, especially those whose true causal relations are unknown. It is the special function of magic to control the operation of this mystical, but impersonal, force. Mana, however, is not always differentiated from the equally powerful and equally mysterious force exerted by the gods. In fact, it is not infrequently the case that these two forces are thought of as identical, or rather, the gods are thought to exert an especially vigorous kind of mana.

The personal, mysterious powers include a vast array of spiritual beings from ghosts and other spirits of the dead, to gods, devils, sprites, fairies, demons, and hobgoblins. It is not to be supposed that man created all these beings in order to frighten himself thereby, and thus get the exciting thrill which comes from contact with them. Rather, they represent a first feeble effort to understand and explain the world round about and the daily happenings therein. That they are one and all man-made is adequately demonstrated by their vast number and by the fact that each people, whether primitive or advanced in culture, possesses its own, thinks of them not only as its own peculiar possessions, but as omnipotent. There is no more difficult feat

²⁰ *Ibid.*, p. 324.

in cultural change than to dispossess a people of its traditional gods. Nor is there a more curious or equally potent inversion of cause and effect than the manner in which each people has created gods in its own image, and then made these gods its own creators and special protectors.

Means of Dealing with Mystical Powers. We may follow Marett ²¹ in defining magic and religion as the two ways of dealing with the mystical powers, or what are conceived to be the mystical powers, of the world. When these powers are thought of as *impersonal*, the means of dealing with them are *magical*; when thought of as *personal* or *spiritual*, *religious*. It is, however, very important to note a distinction in the mental attitude prevailing in the two kinds of practice. In magic, the ceremony is confidently expected to produce the intended effect, unless offset by faulty performance or by more powerful magic. In religion, the ceremony is designed to conciliate or propitiate powers superior to man, powers that may or may not be moved by his approach to them. Whenever spiritual beings are used as tools, or otherwise manipulated in compulsory ways for the achievement of ends desired by the manipulator, the basic conceptions and techniques are magical. Thus those apparently religious ceremonies which constrain, as by a superior force, a divinity to use its power for a prescribed purpose are magical in essence. By contrast, the distinctly religious ceremonies are those which, it is hoped, may move the divinity, but in fact may not. This distinction is subtle and often impossible to make, because religious faith often posits that the divinity can and will be moved, if the supplication—prayer, ritual, sacrifice—is made in the right manner. A residuum of the magical lurks in the phrase, “in the right manner.” That is, even here it is assumed that the ceremony will automatically release the divine power, much as the magician’s weird sing-song inevitably casts a spell. While, therefore, magic assumes a definite and orderly relation of cause and effect of a mechanical, and yet mystical sort, and religion assumes the miraculous intervention of wilful personal beings able to dominate certain phenomena, the two are so closely related that very similar means are often employed by both in dealing with their scarcely distinguished potencies.

²¹ R. R. Marett, *Threshold of Religion*, Methuen and Co., 2d ed., 1914; see also his *Psychology and Folk-Lore*, Methuen and Co., 1919.

The Magico-Religious. We may thus by logic and definition connect mana with magic and spirits with religion, while at the same time recognizing that the two are not clearly separated in practice. These definitions hold for the extremes where the two are found in purest form. At the same time, it is in perfect harmony with facts to hold that the main body of primitive beliefs and practices should be called *the magico-religious*.²² Certain it is that there is much of magical rite in religious ceremony; also that a great deal of what is called black magic represents degraded religious ritual, which has been superseded by more approved forms. Not only so, but nearly the whole mass of primitive thought and practice in relation to the unknown powers is an inextricable mixture of both magic and religion. Mana, for example, which we have made the distinctive theoretical basis of a developed magic, is possessed by priest as well as magician, by gods and other spirit powers, good and bad, as well as by fetishes and charms. The medicine man was both priest and magician. Moreover, the distinction between priest and magician is that between good and bad (approved and disapproved), rather than a distinction in fundamental concepts. Thus the priest manipulated good spirits, while the wizard, by means of his spell, forced the devil to act. This similarity between magic and religion is shown in their common use of the rite. In magic, the essential thing is the spell, whereby the mystical force is exerted; but the spell is cast by the rite, performed exactly according to ancient precedent. But religious rite, or ritual, partakes of somewhat the same character. This is especially true when the assumption is made that the god certainly will act, if the rite is performed in the proper manner. It is not uncommon to find similar ideas to-day among very devout persons who feel that, if they have sufficient faith, or pray in just the right way and spirit, the Lord will be moved.

It must, therefore, be clearly understood that the sharp distinction which we can by logic and analysis draw between magic and religion does not exist in practice. The magico-religious everywhere continues to represent the mass of mystical beliefs and practices, flanked on one side by those which are clearly and quite purely magical, and on the other by those which are clearly and purely religious. The persistence of this combination of the

²² Marett, *op. cit.*

magical and the religious is seen in various current religious ceremonials, such as the Catholic sacraments of marriage and the eucharist.

Common Elements in Magic and Religion. A. *Similar Intellectual Attitudes.* As already indicated, both magic and religion are imbued with the mystery of the world. Back of both are theories of the ways in which things happen. They both find this explanation in the operation of occult forces. Both are forms of supernaturalism. The evolution of thought tends to make magic mechanistic, and religion spiritistic, exclusively. From this angle, magic is a primitive materialism, whereas religion at all times rests on an animistic philosophy. One is an explanation of the world in terms of hidden force, the other in terms of spirits.

B. *Similar Emotional Attitudes.* Both rest largely upon ignorance of the processes of nature and upon the fear, awe, and expectancy which ignorance engenders. Fear and ignorance combine to create an atmosphere of extreme suggestibility, especially when a group of persons holds the same ideas and are possessed by like emotional attitudes. Moreover, the provocative wiles and sly deceits of the medicine man greatly accentuate the suggestibility which naïveté has already rendered irresistible. The emotional realism of primitive magical and religious ideas and practices is due to these subjective factors. Professor A. A. Goldenweiser²³ has called this combination of fear, awe, and expectancy, which is common to both magic and religion, the "religious thrill." Here are the same psychic elements one finds in the thrill of a mystery play when the theater is suddenly darkened, and in the dim light of a fireplace we see shadows moving and hear some one scream. Much of the art of the magician and much of religious ritual are designed to create the atmosphere of suggestibility in which this thrill, or stirring of the emotional nature, most powerfully manifests itself. In advanced religions this atmosphere is augmented also by the character of religious architecture, dim lighting, incense burning, priestly robes, an ancient and unknown language, mysterious formulæ, a sing-song monologue, and other elements common to religious practice the world over. The strength of suggestion contained in these emotions is sometimes as great as the will to live. Individuals are reported as dying from sheer fright, because they believed some

²³ *Op. cit.*, pp. 197, 233, and 346-347.

one had directed the "evil eye" upon them, or pointed the "death-bone" at them. This subjective emotional accompaniment of religious attitudes constitutes, to the believing mind, irrefutable proof of the reality of the mystical forces.

The emotional attendant of magico-religious attitudes is thus extremely important, both psychologically and sociologically. Out of this grows both their social utility and their social disutility. Here is the tap-root of the conservatism, the obscurantism, the resistance to enlightenment, of the mystic mind. Primitive man seems caught in a dreadful dilemma. His ignorance and apprehension build up a set of emotional values which give to his superstitions an appearance of reality, and become the strongest bulwark against his acceptance of strange gods and theories. On the other hand, the magico-religious gives him peace and confidence. In magic, he usually approaches the mystical powers with a sense of surety and optimism; in religion, he has always the hopeful expectation that his supplications and sacrifices will prevail. In view of his tenuous hold on existence and his mystical conception of the determinative forces in nature, it is obvious that his peace of mind is enormously enhanced by having confident methods of dealing with the occult powers. Moreover, it is through common belief and common ritual that the feeling of social solidarity is accentuated. All ritual, except that of black magic, is essentially public in execution. The deepest fact of religious psychology is the sense of psychic peace and worth which one feels when he is in perfect accord with his fellows. This elevates courage and strengthens the will to effort in the face of dangers and hardships.

C. *Ritual*. The technique of both magic and religion is ritual. This combines three essential factors, words, acts, and a proper functionary. The entire performance is governed by a traditional order and form which must be strictly adhered to, otherwise the efficacy of the rite is lost. The words are used to cast the spell, which is the kernel of the whole procedure; it is by means of the spell that the hidden sources of the magical power are tapped and conditions made suitable for its exercise. In religion, the words usually represent a direct supplication of the deity, to whose will access is had by means of prescribed terms. But as Lowie, following Marett, remarks:²⁴ "Thin partitions often di-

²⁴ *Op. cit.*, p. 140.

vide the spell from prayer; a slight change in the formulation of words, a possible transitory personification, may convert the magical formula into a religious petition." The tone of voice is important and repetition valuable. Both word and act may be descriptive, or symbolical, of the ends desired. The whole must be carried out by a person who has been suitably qualified; the instruments used, the animals to be sacrificed, the order of procedure, are all rigid, and can be performed only by one who has been initiated into the mysteries. Rhythm is a common feature of both word and action. The time of year, the phase of the moon, the hour of the day, the day of the week, all must be strictly observed. The place also is important. The gods are nearly always conceived to have special dwelling places or holy areas (a rock, a cave, an image or symbol, an altar), where they are most easily approached and where their power is most efficacious. In black magic, when practiced as an evil art, the place chosen may be the altar of a god, or a taboo or impure place, such as a cemetery or a crossroads; at the same time, there might be used in such a ceremony a part of a religious sacrifice or other object consecrated by religion.

How does ritual arise? It seems to spring up spontaneously, as informal expression of emotional attitudes. Such responses become stereotyped as they take on social character. There is in them, also, a considerable element of imagination and invention, but the savage seems to have no well-defined theory of the efficacy of particular parts of the ritual. The philosophy and theology which we think of as a necessary basis arise later.²⁵ We may find a commonplace illustration in the actions of an individual who is violently angry with another person. He may spontaneously utter some sort of incantation and go through the motions of hitting, stabbing, or otherwise mutilating his would-be victim. The utterance of oaths would itself enhance the feelings of anger, which would be still further intensified by violent action. All this behavior would not imply any theory in the mind of the actor of what would be the effect of his action; but the subjective values would be real and might even be so satisfactory that they would be repeated. The primary psychic mechanism involved here is that of habit formation. Any reflective and observing person can find in his own daily routine certain habits

²⁵ *Ibid.*; also Hasting's *Encyclopædic of Religion and Ethics*, Vol. VIII, p. 248.

for which no particular reason can be given, but which he, nevertheless, is reluctant to alter, simply because the customary arouses in him no sense of uncertainty or hesitation. Our confidence is greatest when doing things in the usual ways, even though these ways may be inefficient or even contrary to ways which scientific analysis would sanction.

It is only a step from habits having no traceable history to those due to good or bad luck coincidence. Articles or actions connected with the extraordinary acquire special import; they remain associated in both thought and emotion. When a student does certain particular things, wears a special garment or otherwise follows some superstitious rule at examination time or on the day of a football game, he feels an element of constraint to do so, and an increase in confidence afterwards. It seems clear that the great hold of the ritual on the practitioner and believer is due to its traditional character, the emotional qualities it has acquired, and the suggestive atmosphere in which it is repeated. Moreover, as we note below, the ritual becomes sanctified by myth. From all this it results that rites are attended by emotional values which make them both authentic and valid in the subjective experience of the believer.

All ritual is essentially magical in nature, though it may be religious in purpose. Its function is to release supernatural power, and to do so by establishing the proper formal conditions therefor. A very interesting indication of this, and also of the close affinity between magic and religion, is found in the fact that rituals, which at one time were used for religious purposes, are later used for magical purposes. Such cases are commonly due to conquest or other social change, whereby one religion is superseded by another. The old and discredited religion gradually passes into the limbo of dark and mischievous magic; it is used to call out the action of discredited divinities, who have now become enemies of the orthodox order. The notorious "Black Mass" is an illustration. Also the fact that to Christians the older religions of western Europe, such as Druidism or the worship of Greek, Latin, or Teutonic deities, appeared to be sorcery and black magic. An even later illustration is found in the fact that Protestants view much of the Catholic ritual as ineffectual magic.

Not only are magical and religious rites often indistinguishable, especially in the lower cultures, but the same rite may be used

for both good and evil purposes. Thus a rite directed by a medicine man for hire against a private enemy is evil and magical, but the same rite, even though employed by the same agent, directed against a common enemy of the group becomes good and religious.

D. *Belief in the Efficacy of Mystical Power.* So long as it is believed that events may turn on the influence of occult forces, men will continue to employ ceremonials to conciliate, or, where possible, to compel, the exertion of their potency. It may be asked, however, why it is that people continue to believe in the efficacy of rites which we now know to be wholly without effect, except subjectively. There are two universally valid reasons for this. In the first place, the subjective effect of the ritual is a clear and indisputable fact of consciousness. Confidence and mental peace, or feelings of awe and expectancy, are internal evidences, in the mind of the believer, of the actual exertion of the supernatural power. They may also have important objective results, because they assist in maintaining the psychic conditions often essential to success. In the second place, it is always postulated that, if the ritual did not work, there was either some defect in its performance, or it was offset by a more powerful influence. This is clearly so in the case of magic. In the case of the more purely religious rite, it is not always assumed that the divinity will be moved. In the third place, tradition counts the "hits" and neglects the "misses." We see illustrations of all three reasons in the persistence among us of popular superstitions regarding lucky numbers, and similar signs and symbols, and of belief in the answer to prayers for divine interference in the physical processes of nature or the course of history.

E. *Similarity Between Priestcraft and Necromancy.* The fact that on the lower levels of culture the medicine man combines the functions of both sorcerer and priest is a striking illustration of the unity of magic and religion. This interesting and mystifying character seems to be the social progenitor of sorcerer (or wizard), physician, and priest. Professor R. B. Dixon²⁶ in a study of the shamans, or medicine men, of the North American Indians, says that many of them exercise the functions of "healer, sorcerer, seer, priest, and educator." This complicated rôle is readily understood in the light of everyday experience.

²⁶ *Journal of American Folklore*, 1908, pp. 1-12.

In most situations in which our emotions are affected, we have a feeling of the inadequacy of our practical knowledge to insure our success and safety. Even persons who ordinarily manifest little interest in magico-religious forces are very likely to resort to them in the face of a crisis. It is little wonder then that the individual who is believed to have special access to supernatural influences should be sought by those who wish personal aid in sickness, war, love, travel, business, or otherwise. The medicine man is thus the progenitor of the professions. Like all of them, especially in their earlier stages, his practice combines wizardry, priestly intervention, and usages based on common-sense experience. He was usually a man of outstanding qualities, able to command a following by force of personality. Moreover, the occult character attributed to him multiplied his psychic influence many fold. Primitive medicine, for example, included quite an elaborate array of practical methods, such as the use of various herbs and concoctions, ligatures, bleeding (leech-craft), poultices, massage, splints, trepanning, dressing of wounds, steam baths, and other practices still in use. But there was usually also a lurking suspicion that sickness might be due to some mysterious agency, which could be reached only by magical practices. Likewise divination was based in part on a more or less extensive classification of omens, signs and symbols, some of which rested at least in part on observation and analysis. But there was in addition the assumption of the probability of special divine intervention, and hence an effort to forecast the will of the gods. In Babylonia and Rome, divination took on a definitely religious character, being practiced by priests for state purposes.

F. Myth. A universal accompaniment of magic and religion is myth. While myth technically defined may be distinguished from fairy tales, legends, parables, and allegories, the line between them is not always sharp. Neither is the line between history and myth always discernible. Even speculations of a scientific sort not infrequently become embodied in myth. The primary traits of myths are, however, (1) their sacred quality, (2) their unquestioned acceptance as true, (3) their social character, and (4) their deep emotional value. One is privileged to laugh at an allegory, to believe or not believe a fairy tale or even a legend, but all members of a given primitive group are expected reverently to accept the tribal and clan myths.

That myths develop spontaneously in society is a matter of everyday observation. What we call "gossip" is very largely a process of myth manufacture. Much "news" also is built on the universal desire to be told something out of the ordinary. The child's interest in story telling and its ready acceptance of the most fantastic tales of fairies, hobgoblins, Santa Clauses, and miracles show that the uncritical mind has no criteria whereby to check the incredible. Myths thus arise from a desire for the thrill that attends the unusual; repetition increases credibility; when handed on to the younger generation by the older, they come with a note of authority and are accepted with a faith which gives them vitality and reality. They acquire an emotional power, which, to the believing mind, is the surest evidence of their validity. Since myths are sacred in character, they may be best understood as justifications of the mores. *Their function is not to explain the nature and origins of things, so much as to give certain beliefs and practices a special place in the social tradition.*²⁷

The primitive thinks of his myths, as of his magic, as having always existed. They doubtless have their roots very far back in social tradition; they grow, become definite in form, have a more or less long period of vigor and social utility, and then fall into disuse and decay in consequence of associated cultural changes. Myths always relate to matters of human origin, worth, and destiny. There are, for example, many creation myths. These give an account of the origin of the world, of man, of clan, and of tribe. There are myths of transformation of animals into man, and man into animals. Lycanthropy, or the assumed power of men to change themselves or others into animals, such as wolves (werwolves) and other creatures, is a frequent feature of primitive mythology. Wizards and witches usually have this power. The life after death and the abode of the dead, the transmigrations of souls, the future happiness of the good and the suffering of the wicked, are all depicted in mythological form.

The above-mentioned view of the function of myths is supported by the close connection between myth, magic, and religion. Being implicitly believed, they supply an authentic basis for the emotional attitudes necessary for social cohesion and the moral order. "Myth fulfils in primitive culture an indispensable function; it expresses, enhances, and codifies belief; it safeguards

²⁷ B. Malinowski, *Myth in Primitive Psychology*, W. W. Norton and Co., 1926.

and enforces morality; it vouches for the efficiency of ritual and contains practical rules for the guidance of men. Myth is thus a vital ingredient of human civilization; it is not an intellectual explanation or artistic imagery, but a pragmatic charter of primitive faith and moral wisdom.”²⁸

The validity of this viewpoint can be illustrated by certain myths familiar to our own culture. The story of the creation of Adam and Eve and their subsequent expulsion from the Garden of Eden vindicates the belief in God, the human soul, the high estate of man, the benevolent intentions of the Deity, the dreadfulness of sin, and the certainty of Divine punishment. The delivery to Moses on Mount Sinai, directly from the hand of God, of the tables of stone on which were engraven the Ten Commandments gives to these moral rules a special, inviolate character, which enshrines them deeply in both social custom and individual emotion. Myths of virgin births are numerous; in fact, all births were at one time apparently explained as due to occult forces. Special significance, therefore, attaches to the retention of the myth into a more sophisticated culture. A myth of apparently recent origin and having an emotional value for many people is that of the Holy Grail. As Malinowski says:²⁹ “The myth is to the savage what, to a fully believing Christian, is the Biblical story of Creation, of the Fall, of the Redemption by Christ’s Sacrifice on the Cross. As our sacred story lives in our ritual, in our morality, as it governs our faith and controls our conduct, even so does his myth for the savage.”

Summary. The following features are common to both magic and religion. 1. *A theory of things.* The mystery of the world and of life, plus man’s ignorance of natural causation, leads to the explanation of events in terms of occult forces. This explanation seems verified in experience by the luck element in life, an element which looms large in the absence of knowledge and the control over the conditions of existence which knowledge gives. 2. *The magico-religious.* While the hidden powers are distinguishable as personal and impersonal, the main body of primitive thought and practice drew no sharp line between the two. Magic and religion grow from a common stem, but become more and more distinguishable as culture advances. 3. *An emotional atti-*

²⁸ *Ibid.*, p. 19.

²⁹ *Ibid.*, p. 18.

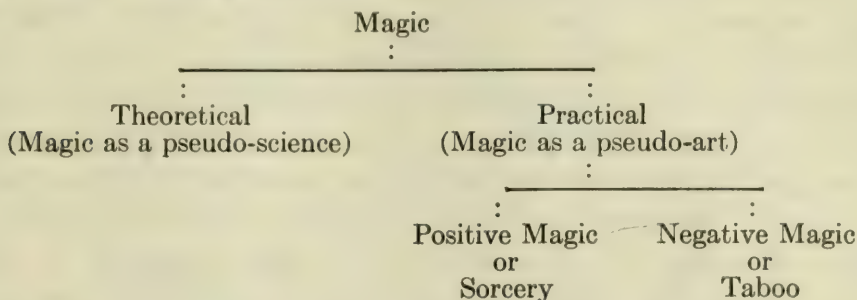
tude. Mystery and ignorance produce emotions of fear, awe, expectancy, and reverence. These create, or imply, need of psychic support in the struggle for existence in a world of occult powers. 4. *Ritual.* Rites and ceremonies are designed to bring the operation of the mysterious powers into line with human needs. They are believed either to release such powers, or to compel their action. 5. *A code.* Ritual readily extends itself into a code of behavior with reference to all things related to the field of operation of the magico-religious forces. Since this field is so large as to include nearly the whole of human interest and activity, the life of primitive man is almost completely enveloped in a mystical haze and governed by a multiplicity of rules designed to bring good luck, or to ward off evil. 6. *Group solidarity.* The occult powers and all beliefs, symbols, and rites relating to them are group possessions. They constitute the sacred, and individual behavior toward them is fraught with important consequences for the welfare of the group as a whole. This is especially true in primitive life, where the tenuous hold on existence compels group solidarity, and where the ideas of kinship bind all together in mystical bonds of a common divine origin and a common mysterious destiny.

MAGIC

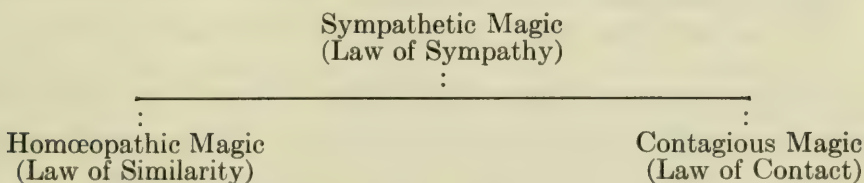
Nature and Function. We have seen that in its purest form magic signifies the manipulation of mysterious power, operating mechanically. The magic force is impersonal; it does not depend for its existence on a personal will. It may be set in operation by the will of the wizard or wizard-priest, or other qualified person. It may reside in persons or things, or merely exist. It is released or set in operation by appropriate words, phrases, gestures, or symbols. It operates according to definite rules, so definite that good magic can be used with precision to counteract bad. Not infrequently, as in the magic of health and sickness, the formulas go in couples, good and bad. Magic is associated with chance, accident, danger, and any other situation fraught with uncertainty. It is a general supplement to practical knowledge, being drawn upon wherever man's mastery of the situation is inadequate. Owing to the extraordinary complexity of magical, magico-religious, and religious phenomena, there is considerable difference of opinion as to the kinds of magic and

the relations of magic to science on the one hand and religion on the other.

Kinds of Magic. In the most extensive study of magic that has ever been made, Sir James Frazer³⁰ classifies magic according to the following scheme:



Frazer's fundamental assumption is that magic arises in consequence of the association of ideas, and that there are two conditions which most frequently give birth to it. There is, first, the magical intimacy due to similarity, and, secondly, that due to contact. The first gives rise to what he calls the law of similarity, that "like produces like," or that an effect resembles its cause. The second gives rise to the law of contact or of contagion, or that the magical force is spread by contact or by mysterious contagion from a part to a whole or from one object or person to another. Both of these are included under the law of sympathy, as shown in the following:



Illustrations of Sympathetic Magic. An outstanding illustration of homœopathic, or imitative, magic is found in the various rain-making ceremonies. In all of these the processes of nature are imitated more or less faithfully, the assumption being that the imitative ceremonial will exert a supernatural influence upon the natural processes so as to bring them to pass. Some of these rain-making ceremonies are extremely elaborate, the rising of the wind being imitated by an individual climbing a tree, swaying among the branches, and whirling about his head a

³⁰ *The Golden Bough. A Study in Magic and Religion*, 1 vol., abridged ed., The Macmillan Co., 1923, p. 20.

bull-roarer; dark clouds are imitated by dark-colored cloths or other materials; lightning by the use of fire; thunder by the beating of drums; and the falling of rain by sprinkling of water.

Homœopathic magic has found extensive use in medical practice. It is widely illustrated by the doctrine of signatures whereby plants, minerals, or other objects were supposed to indicate by their external appearance certain subtle potencies usable in curing the sick. Thus, for example, a concoction made from yellow flowers, or from a yellow-leaved plant, is believed to be suitable for the cure of jaundice; the bloodstone is useful for hemorrhages, and so on. The motto of homœopathic medicine, "*Similia similibus curantur*" is an expression of this doctrine. A quite similar form is the widespread belief that the eating of deer meat will make one timid, whereas the flesh of the wild boar or other ferocious animal will make one lion hearted or stout hearted. There is, indeed, still a widespread popular notion that individuals become like the foods they eat. Another widespread type is used to inflict injury on a person by making an image, or effigy, of him which is then beaten, mutilated, or burned. A Malay, having made an image of his enemy out of beeswax and such former parts of him as nail parings, hair, spittle, and so forth, holds it over a lamp seven successive nights, repeating at the same time the incantation:

It is not wax that I am scorching.

It is the liver, heart, and spleen of So-and-So that I scorch.

Contagious magic is illustrated by those numerous cases where a part of an object stands for the whole. Thus, a lock of hair gives one considerable control over its former owner. In the above Malayan practice there is an element of contagious as well as imitative magic. Love magic is believed to be exerted by any object which has been in contact with the loved one, as well as by photographs, other representations, or even symbols. Birth marks are still commonly explained by the principles of contagious or imitative magic. (Figure 63.)

In addition to these very widespread forms of magic, there is an almost infinite variety of other notions, too varied and numerous to classify, which constitute the considerable body of popular superstition. Here are included ideas of charms of all sorts, amulets for warding off bad luck, talismans and phylacteries for

inducing good luck, magical numbers, the subtle potency attaching to such accidents as breaking a mirror, spilling salt, dropping a spoon, and a thousand other similar notions. In fact, it is almost impossible to find any common activity which naïve tradition has not in some way related to magical potencies.



FIG. 63.—A Paleolithic cave artist's painting of a bison, in black, in the cavern of Niaux, France. The arrows painted on the body indicate the use of the figure in magical practices relating to food and the chase. (After Breuil.)

Positive and Negative Magic. It should be clearly understood that magic may be exerted not only positively, but also negatively. It is exerted positively when it is used to bring a certain phenomenon to pass. It is used negatively when it is employed to prevent a certain event from happening. The most universal form of negative magic is *taboo*. The essence of taboo is that one must refrain from doing, saying, or touching certain things, otherwise something dreadful will happen. One must not, therefore, touch sacred objects, nor pronounce sacred names, nor do any of those things which in any way indicate an attitude of disrespect, irreverence, or unseriousness toward persons, objects, animals, or divinities believed to possess mana.

Magic and Science. We have already indicated that there are certain similarities between the magical and the scientific view. Both assume the operation of impersonal causes in a mechanical fashion. In magic there is, as a rule, an assumed uniformity of cause and effect much as in natural law.³¹ Frazer argues that the two views are essentially the same, the only difference

³¹ *Ibid.*, pp. 11 *et seq.*; also Carveth Read, *Man and His Superstitions*, Cambridge Univ. Press, 1925, p. 41.

being that magic makes the wrong assumptions regarding the causal relation. He calls magic "the bastard sister of science," and holds that, "All magic is necessarily false and barren; for, were it to become true and fruitful, it would no longer be magic but science." Likewise Tylor³² called magic an "occult science," or a "pseudo-science." From this point of view a scientific theory, which has been found erroneous and discarded, really represents a form of magic. Thus astrology preceded astronomy, and alchemy, chemistry.

While this view undoubtedly has a certain validity, it has been severely criticized because it leaves out of account two important facts. In the first place, in a large proportion of magical rites it is not assumed that there is such perfect and consistent uniformity in the operation of cause and effect as will *necessitate* the accomplishment of the event which the magical rite is designed to bring about. In the second place, it is observed that a large proportion of magical rites are performed with solemnity, humility, and reverence. These two objections, however, apply to those magical rites in which is mingled a considerable religious element. Frazer's contention has considerable validity, therefore, with respect to those rites which represent magic in its purest form. Such rites, on the other hand, represent only the fringe of the great field occupied by the magico-religious.

At the same time, there is usually an emotional difference between the scientific and the magical attitude. The scientific attitude is matter-of-fact, whereas the magical has in it an element of amazement, expectancy, and uncertainty. There is, of course, a difference between the logic and the method of science and those of magic. Science assumes only natural causes and arrives at its results by observation, experimentation, and verification. Magic assumes occult causes and works in an atmosphere of mystical unreality. The failures of applied science are due to an inadequate knowledge, and can be corrected by further research. The failures of magic are due to some slip in the performance of the ritual, or to counter-magic, and can only be corrected by further magic. The believer in science can check his results by controlled experiment, but the believer in magic necessarily becomes more and more deeply mired in the slough of his superstitions.

³² *Primitive Culture*, John Murray, 4th ed., 1903, Vol. I, pp. 112 and 119.

PRIMITIVE ANIMISM

Meaning of Animism. Since the days of Tylor it has been customary to apply the term animism to primitive theories of a spirit world and of its constant intervention in worldly affairs. Animism includes not merely ideas of the personal soul, but of spiritual beings generally, as the ultimate determiners of human fate. Belief in the existence of some vital element, or spiritual entity, called the soul, ghost, spirit, shade, breath, phantom, shadow, apparition, and so forth, is well-nigh, though not quite, universal. It is one of the most pervasive and moving conceptions of social thought. It has been a more influential factor in the development of popular philosophies and social psychologies throughout the world than any other single concept held by man. It is still a basic conception in the thinking of the vast majority of men, even among the peoples most advanced in scientific culture. People who regard all primitive ideas about ghosts as grossly erroneous and childish superstitions, nevertheless still cherish some ill-defined notion of soul and of spiritual immortality.

The first question that suggests itself, then, is, How did the idea of soul arise? Closely related are questions as to how the soul is conceived by different peoples, and how the conception of the soul may give rise to an animistic conception of the world.

Theories of the Origin of the Concept of Soul. The origin of the idea of the soul is of course lost in prehistory. There are, however, three highly plausible psychological facts that would account for it. In the first place, there is man's awareness of his own power to exert force and thus bring things to pass. It would seem natural, therefore, for him to attribute events to other personal powers. In the second place, there is the universal fear of death and annihilation. It is difficult for most persons to conceive the complete cessation of their own existence, to say nothing of contemplating it without emotion. Moreover, this life is usually sufficiently filled with suffering, fear, and privation to give rise to dreams of a better life in a better land. The hope of immortality seems spontaneous, whereas the tragedy of life gives rise to the hope of a heaven and a blessed hereafter.

In the third place, the effort to understand the phenomena of life and nature seems to give rise to the belief in spiritual entities. This theory was set forth in classical form by Tyler in his *Primi-*

tive Culture (1871), and later extended and modified, though not in all respects improved, by Spencer in his *Principles of Sociology* (1876, Part I). They held that primitive man arrived at the concept of soul as an inference from certain impressive facts of everyday experience and by the direct evidence of his senses. In other words, the notion is one easily, directly, and reasonably arrived at. In the first place, all men are impressed by the difference between a living person and his dead body, a difference which immediately suggests that there is a vital and ethereal part of man, more or less easily separable from the visible body. This suggestion is borne out by the experiences of dreams, visions, states of swooning, and insensibility, and the observation of shadows, reflections, and echoes.

Almost, if not quite, as impressive are the experiences of sleep, dreams, hallucinations, and visions. "It is a well-established ethnological fact that savage and semi-civilized men as a rule explain sleep, swoon, and unconsciousness as due to an absence of the sentient entity from the body. The invisible duplicate thus wandering away may be made to return to the body by shouts and by calling the name. Sometimes, as in ordinary sleep, it comes back immediately. In other instances, as when the body is in a state of lethargy or trance, the return of the other-self is postponed for hours, at times for several days." Spencer and Gillen, who lived intimately among the Northern Tribes of Central Australia, say, "What a savage experiences during a dream is just as real to him as what he sees when he is awake."³³ A man wakens after a dream, having had a vivid experience of traveling to a distance, of hunting, fighting, or making love, or of having received a visit from persons living elsewhere, or already dead. The primitive man's dreams undoubtedly are often extremely vivid in consequence of alternating periods of feasting and starvation. What is more natural, therefore, than to conclude that there are two selves, the physical, which is the visible body, and the "other-self," which is the invisible spirit. The Australians universally believe that their dead ancestors visit them during sleep, to give counsel, to warn against dangers, or to communicate magic charms. Some peoples awaken a sleeper slowly so as to give ample time for the return of his soul.

³³ Both quotations from Sumner and Keller, *op. cit.*, p. 793.

Closely related are visions and hallucinations, in which the individual clearly perceives persons or objects ordinarily inscrutable. If an individual swoons or passes into a state of insensibility in consequence of accident or injury and later revives, it would seem reasonable to explain his change of behavior as due to the going and returning of his vital ethereal self. Spencer suggests that the phenomena of shadows, reflections in the water, and echoes would also be easily and logically attributable to one's "other-self." It thus happens among primitive peoples that the shadow or silhouette acquires vital significance. Murder may be committed by driving a knife through a man's shadow. Many people will not permit themselves to be photographed for fear they will thus lose their "other-selves." Ghosts or ghost-souls, that is disembodied souls, commonly have no shadow, being such themselves.

Once the idea of a soul or ghost-soul is arrived at, the world would be easily and reasonably peopled with ancestral spirits, the spirits of animals and all sorts of other spiritual creatures, demons, hobgoblins, lycanthropes, and various angels and cherubim.

Primitive Conception of the Soul. Tylor's description of the primitive conception of the soul is justly famous. "It is a thin, unsubstantial human image, in its nature a sort of vapor, film, or shadow; the cause of life and thought in the individual it animates; independently possessing the personal consciousness and volition of its corporeal owner, past or present; capable of leaving the body far behind, to flash swiftly from place to place; mostly impalpable and invisible, yet also manifesting physical power, and especially appearing to men waking or asleep as a phantasm separated from the body of which it bears the likeness; continuing to exist and appear to men after the death of that body; able to enter into, possess, and act in the bodies of other men, of animals, and even of things."³⁴ It is universally true that the primitive conceptions of spiritual beings make them neither grossly material, nor yet wholly immaterial. There are, of course, great variations in these conceptions from much to little materiality. For the most part, ghosts and spirits are thought of in narrowly human terms, that is, as images or doubles patterned after the original and with human needs and passions. There is

³⁴ *Op. cit.*, p. 429.

nearly always the possibility of identification of ghost-souls. They not infrequently manifest instincts of love and hunger; they suffer from cold and heat; they are warmed by the fire; they fight with each other; they are not always immortal, for among some peoples they grow old and die. They may also be wrestled with, or otherwise manipulated by material forces. The soul is thought of as located in some special part of the body, the loss of which would mean death. As a rule also, ghost-souls are endowed with great rapidity of movement and frequently with capacity to take on varied shapes with unusual powers. The soul is conceived in the following ways:

A. *As embodied.* (1) The soul is widely conceived as the *life* of the body, the body and soul being thought of as inseparable. In this case, the qualities of the soul may remain in the flesh even after death. It is believed that some cannibalism is due to the desire to secure the benefits of the soul mana, an illustration of contagious magic. Here also is a basis for such funeral customs as embalming, providing food for, and warming, the corpse, and other burial customs.

(2) *As the life-blood.* This idea is probably derived from the fact that an excessive letting of blood results in death. From it are derived blood sacrifices and atonements and a great amount of blood symbolism. The widespread practices of theophagy, or eating the totem or god on certain holy days, or as the essential parts of important religious ceremonials, are derived from the ideas of the soul as embodied, or as the life-blood. The Christian doctrine of transubstantiation is an interesting modern form of the ancient ceremonial eating of the god, practiced in the Mystery Religions of the Greeks and in the cults of Attis, Adonis, Osiris, Dionysus, Demeter, and other savior gods of pagan times. All such practices obviously have in them an element of contagious magic.

(3) *As the heart.* This is closely related to the foregoing. The cessation of the beating of the heart is a sign of death. Similar are conceptions of the pulse as the essential, vital part.

(4) *As breath;* (5) *as a flame;* or even as a *name.*

B. *As disembodied.* Here the soul is thought of variously as a shade, shadow, reflection, ghost, or phantom. When a man dies he "gives up the ghost." To step on the shadow of a Basuto was considered extremely injurious, as stepping on one's "other-

self." When they first came in contact with mirrors the Indians refused to look into them, because it was "very bad medicine" (bad mana) for one to see his own double. Photographing was widely conceived to be a process of extracting doubles, and was feared partly because of danger of losing one's soul, and partly because the possession of a photograph gave one power to inflict injury. Medicine men utilize disembodied souls as messengers. A man may even have his soul extracted by the shaman when going on a long journey, thus insuring his safe return. Souls are commonly attributed to animals, and associated therewith everywhere is the doctrine of the transmigration and reincarnation of souls. Souls may thus return in the form of any and all sorts of animals and insects. Babies are very commonly looked upon as reincarnated ancestors. The reincarnation of good and superior persons is eagerly expected. On the west coast of Africa, various articles belonging to deceased members of the household are placed before an infant, to determine who he is, as "See, Uncle so-and-so knows his own pipe." Sometimes, however, parents make mistakes, for a mother, scolding her offspring may say, "We made a big mistake when we thought you were So-and-So."³⁵

Ghostology in all its forms, including its survivals among us, is rooted in the belief of the soul as disembodied. It is in consequence of this conception that all nature, especially the impressive parts of the plant and animal world, came to be pervaded with personalities, good and bad, many of them the spiritual essences of the dead. Much of primitive life was, therefore, occupied with making the proper adjustments to these fictitious entities, by prayer, ritual, sacrifice, and other magico-religious ceremonials. Here, also, should be included a great galaxy of notions regarding possession by evil spirits, as explanations of sickness, swooning, feeble-mindedness, epilepsy, insanity, and death. So also mediumistic practices, including prophecy, oracles, and a great deal of witchcraft and sorcery, are most readily understood as activities of spiritual entities, malevolent, or benevolent.

Plurality of Souls. Primitive thought was not always content with attributing a single soul to an individual. Not uncommonly

³⁵ See H. B. Alexander, "Soul" in Hastings' *Encyclopædia*, Vol. XI, pp. 725 *et seq.*; also Sumner and Keller, *op. cit.*, Vol. II, Chap. xxiii.

individuals were believed to have two souls, as one of the head and one of the heart, each with a separate destiny. One soul may go to heaven and one to eternal torment. There is a belief among certain Indian tribes that individuals possess four souls with varied destinies. This belief seems to be connected with the idea of a sacred number.

Ghostology. Ideas of soul usually combine the seemingly contradictory qualities of spirituality and materiality. This combination of a spiritual or vital essence and of a thinly material double constitutes the notion of the ghost-soul. This is still the most widely held notion of the soul, even among advanced peoples. As already suggested, ghost fear is a perennial source of philosophic speculation and of ritualistic practice. It gives rise, therefore, to ghost cults, seeking by suitable magico-religious ceremonies to control individual and social relations to the ghost world in profitable ways. Once the ghost theory is accepted, the intervention of ghosts becomes a ready and convincing explanation of an enormous range of otherwise inexplicable happenings. There is in all religion an important element of expediency. If gods or ghosts control events, then whatever behavior is pleasing to them must be right, and whatever is displeasing must be wrong. Thus ghosts, being either friendly or hostile, that is, good or bad, must be manipulated either positively or negatively. Consequently ghost cult practices include those designed to ward off interference by evil spirits, to prevent their return, or to circumvent their activities. On the other hand, they also include prayer, sacrifice, and propitiation in a great variety of forms designed to win the favorable intercession of good spirits.

Ancestor Worship; Demonism; Hierarchy of Divinities. Once the concept of soul or spirit was arrived at, it was easily extended. The worship of ghosts very commonly evolves into ancestor worship. It is not all ancestors who are worshipped but only the powerful ones. The departed souls of children, for example, are soon forgotten, but not so the ghosts of parents or other ancestors, who, during life, displayed unusual physical or mental power. It is power that man fears, and the mysterious powers of the superior dead came almost everywhere to be the most fearful objects in his cosmology. It was easy to extend these fears and their countervailing hopes to the spirits of other power-

ful persons, the heroes of the past, of the same or related tribes. Thus, out of ghostology arose ancestor worship, with the associated worship of heroes in general, a type of religion which still remains in much elaboration in the cultures of Japan, China, and India.

But the extension could not stop here and inevitably came to include other and strange spirits of unknown or mysterious origin, of unusual shapes and powers. Thus evolved demonology, or a generalized worship of spirits, the powerful and mysterious agencies which explain all the phenomena of earth and sky which have not sunk into the commonplace. Out of this galaxy of spiritual entities, there evolve ever higher and more powerful deities. This process of evolution is deeply affected by cultural contacts, especially by migration, trade, and war. Conquest is usually followed by some rearrangement of the divine hierarchy and by the replacement of old gods by new ones. In the course of time, ancestor worship may become only superstition, as do also earlier beliefs in all sorts of ghosts, demons, witches, fairies, and sprites.

The Animistic World. In some such way as we have sketched in the preceding paragraphs the world of primitive man became a world governed by mysterious powers, of which the vast majority and the most impressive are of a spiritual nature. In view of his primary concepts it is logical for him to attribute the phenomena of nature to the wills of animated beings. For him there are not merely spirits in the tree, the grass, and the corn, which made them grow and unfold, each according to its nature; but there are also spirits in the wind, the clouds, the river, the waterfall, the sun, and every other moving or changing thing. The number and character of his most important divinities depend largely on his geographical situation and his cultural background. If near the sea, Neptune or one of his prototypes may occupy a large place in his theology. Desert peoples are more given to worship of the sun, moon, and stars. Always and everywhere the outcome of important undertakings and the crises of life are associated with the attitudes and intervention of special divinities. No important hunting, fishing, or military expedition can be undertaken until elaborate ceremonies have insured their favorable attitude. Likewise, the workaday activities, such as the sowing of grain, the harvesting of

crops, the manufacture of household articles, the preservation of food, the making of drinks, the consumption of food, the crossing of a neighbor's door-sill, and endless similar commonplace activities are not infrequently attended by ritual and ceremonial designed to insure the favor of the gods, or to ward off the action of malevolent spirits.

Good and Bad Spirits. This belief in spiritual beings is universal, as is also the fact that they are everywhere divided into



good and bad, benevolent and malevolent. Just as some of the departed ancestors were friendly during their lifetime and others were hostile, so would their departed selves be. Since the unlucky events of life are usually more poignant in their psycho-

FIG. 64.—A Paleolithic devil from a Spanish cave. One of the earliest indications of belief in demonic beings of human form. (After Breuil.)

logical effects than the lucky ones, so malevolent spirits are generally more universally feared than benevolent ones are loved. It follows that a much larger proportion of primitive magic and religion is concerned rather with conciliating spirits that are hostile or indifferent, than in inciting the favor of friendly spirits. In other words, demonism, fetishism, and other forms of belief in, and treatment with, spirit familiars, devils, demons, and kindred agents, loom extraordinarily large in the primitive magico-religious. (Figure 64.)

With the evolution of thought, a large proportion of these beliefs are sloughed off. At no stage, however, does any religion lose the quality of the fundamental dualism, the direct antithesis between gods and devils. Even in the most advanced religions, such as Christianity and its predecessors about the eastern Mediterranean, as also Mohammedanism and Buddhism, the main object of life for the devout believer is to save his soul from contamination by contact with the ways and things of evil spirits, so as to bring it through its earthly pilgrimage prepared for a saintly immortality. Christian theology pictures life largely as a

struggle of the individual soul to decide between the enticements of Satan and the wiser counsels of his conscience, the voice of God.

Possession. In view of the manner in which primitive man conceived the soul and the animistic world generally, it was easy for him to think of strange or unusual spirits taking up their abode in individuals, other living things, or even inanimate objects. This conception served readily to explain abnormal behavior, or the manifestation of unusual powers. Feeble-mindedness, insanity, epilepsy, hypnotic and trance states, and similar conditions were believed to be due to possession by alien spirits. Such spirits figured very largely in primitive medical practice, one of the most important powers of the medicine man being his ability to free individuals from alien spiritual entities. To this end, the victim was frequently subjected to beating, sweating, and other painful and even inhuman practices for the purpose of driving out evil spirits. The medicine man combined leech-craft steam-baths, poultices, and concoctions with the magic of exorcism. In this connection is found the practice of driving the evil spirits from persons into animals or things, as in the Biblical story where the evil spirits were driven out of men into swine, which then precipitated themselves into the sea.

These beliefs likewise gave rise to all those practices connected with oracles, prophecy, soothsaying, and mediumism. The priest, because of his assumed intimacy with divinity, readily gives rise to the prophet and the diviner. The uncertainties of life and the belief that the turn of events depends upon the will of spiritual beings creates an irresistible desire to ascertain in advance whether the attitudes of these controlling agencies are favorable or unfavorable. Special localities are often believed to be particularly imbued with the magical potency of particular divinities ruling special kinds of events. The priest or oracle living there, and consequently maintaining a familiar relationship with the spiritual power and miraculously suffused with divine potency, is readily believed to be able to forecast the action, or policy, of the divinity whom he patronizes. So logical and so fundamental are these conceptions, that even the highly advanced peoples of Egypt, Babylonia, Assyria, Greece, and Rome all maintained public oracles and soothsayers, who were always consulted before the undertaking of important military expeditions or the final decision of great policies of state.

Fetishism. Similar to the idea that individuals may become the abode of strange spirits is the doctrine that inanimate objects may be the "god-house," or residence of a spirit. All such objects are classed as fetishes, but this term sometimes includes also objects believed to be magically potent in themselves. As a rule, fetishes are believed to act as charms, amulets, or talismans possessing mana, or magical power, derived from a god or spirit. They are not worshipped but are believed to be powerful regulators of the mysterious agencies which control human weal and woe. The West African native uses his fetish in all important activities, "hunting, warfare, trading, love-making, fishing, tree-

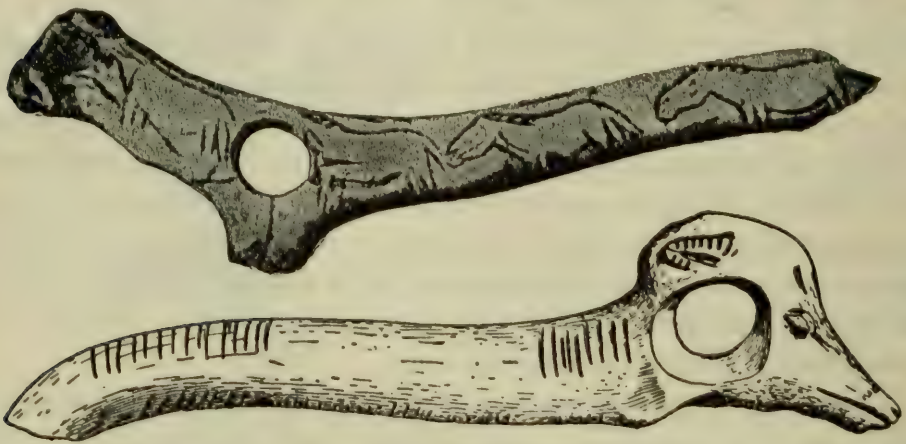


FIG. 65.—Paleolithic magic wands of reindeer horn of the Magdalenian epoch, also called "ceremonial staves" or "batons de commandement." The upper is engraved with wild horses, the lower has a carved fox's head. They very probably served magico-religious purposes; they may have been fetishes. (After Breuil.)

planting, and starting upon a journey." ³⁶ Fetishes range all the way from simple objects which can be carried about by the individual to such things as cairns, altars, and even buildings in which reside powerful spirits. One of the most common fetish objects is the grave, because the ghost of the dead hovers there. Burial places, whether caves, mountains, lakes, or trees, are taboo. A corpse possesses magical power and is, therefore, taboo, as is also a haunted house. Allied to these is the custom of burying a person, dead or alive, in the foundation walls of a structure, so that his spirit may safeguard it. The overlapping of magic and religion is well illustrated in the fact that many fetish objects such as fingernails, hair, pieces of dried flesh, or bones, are the

³⁶ Lévy-Bruhl, *How Natives Think*, p. 231.

parts of individuals. Under the principle of contagious magic, these objects possess the vital essence of the person from whom they came. Closely related is the primitive, and the similar Catholic, tradition regarding the potency of relics of saints or other powerful personages. These are conceived to be invaluable as charms against malevolent forces, a guarantee of good luck. (Figure 65.)

While many fetishes, some authorities say most, are "possessed" by a ghost-soul, it is clear that some of them are possessed by other spiritual essences. In fact, any sacred object, such as a cross, a wayside shrine, an ikon, or any sort of image or idol conceived to be imbued with the potency of any kind of god or demon, partakes of the qualities of a fetish.

The function of the fetish likewise ranges from that of a simple charm, conceived to exude a mysterious potency which serves to ward off a variety of evil forces, to spiritual agencies which can transfer their power to a considerable distance. The fetish is often also conceived to be under the personal control of the individual, who, by beating it or otherwise exerting force upon it, may compel it to exert its mysterious potency. Psychologically the fetish serves the same function as magical and religious beliefs generally. It produces mental peace and confidence. "The heathen armed with his fetish feels strong. He believes in it; has faith it will help him. He can see it and feel it. He goes on his errand inspired with confidence of success."³⁷

MAGIC, RELIGION, AND THE SACRED

Sacred versus Profane. It is universally agreed that a quality of "sacredness" everywhere is attached to what is religious. "The religious life is sacred, and the objects that sustain it are likewise sacred."³⁸ It is not merely the gods who are sacred, but everything which in any way pertains to them,—their names, symbols, words, representatives, localities, altars, and places of worship, rituals, and any other objects which the gods have impregnated with their mysterious power. Under the sacred must also be included whatever is imbued with magical potency. In other words, the sacred includes the entire domain of the magico-

³⁷ W. B. Selbie, *The Psychology of Religion*, Clarendon Press, 1924, p. 38, quoting from R. H. Nassau, *Fetishism in West Africa*.

³⁸ Marett, *Psychology and Folklore*, The Macmillan Co., 1920, p. 158.

religious. All other things belong to the common or profane. Since the sacred is associated with supernatural power, it is always to be treated with respect, with reverence and solemnity. The profane or common, on the other hand, may be treated in a practical matter-of-fact way. Nothing is more shocking to any people than to see what is sacred to them treated by another people with the emotional indifference, or even the levity, with which they themselves treat the common or profane.

It is in this connection that we may at last arrive at a definition of religion. Tylor's famous minimum definition, "Belief in spiritual beings," is not satisfactory because it takes no account of ritual. Frazer defined it as follows: "A propitiation or conciliation of powers superior to man which are believed to direct and control the course of nature and human life."³⁹ This is clearly what is meant by religion as the term is commonly used, for by "powers," Frazer means "conscious, personal beings." But both "the sacred" and "the magico-religious" include material objects and impersonal forces, so that Frazer's definition is not sufficiently comprehensive to include "the religious" as it exists among primitive peoples. In this broader sense, religion includes (1) a belief in the sacred, and (2) the mental attitudes (thoughts and feelings), and (3) behavior (ritual and conduct) relating thereto. Since "the sacred" is the essence of "the social," religious phenomena are identified with ideas of group welfare, or of the welfare of individuals as members of the group.

Characteristics of the Sacred. The primary characteristic of the sacred is that it is either the supernatural itself, or endowed with supernatural potency. It is that which deeply influences the crises of life, and ignorance of natural causation tends to make every important event a crisis. In the second place, there is a necessity of treating the sacred as something mysterious, as occult or hidden. Even in the most advanced religions, there is preserved the idea of a secret communion of the saint with his god, or the belief that God sees and hears in secret. It was largely this notion, that the sacred, being mysterious, could only be understood or approached by those specially initiated into the mysteries, that gave such extraordinary power to the medicine man, sorcerer, and priest. The sacred is taboo, or set apart

³⁹ Frazer, *op. cit.*, p. 50.

as fraught with momentous power for good or evil. It is ancient, and hallowed by tradition.

Social Determination of the Sacred. Just as magic and religion generally must be looked upon as social products, so the special character of the sacred in any society depends upon the social history of that society. It is everywhere true that what is sacred constitutes the most precious part of the social tradition and the social possessions. Nothing is more deeply cherished by any people than its special divinities with all of the ritualism and symbolism attending them. There is, consequently, a universal tendency for that which is sacred to become identified with the fundamental concepts and symbols of the group itself. It is literally true that every people creates its own divinities and then makes itself in turn the chosen people of its gods. This is observable even in the most advanced nations. We take it as a matter of course in the case of the Greeks or the Romans, and fail to notice that it is equally true of ourselves. The Kaiser's "Me and God" in 1914 meant the German nation and their God; but the sentiment was not unique. At the same period, the leaders of all the great nations, presidents, kings, czars, sultans, and emperors, were repairing to their churches, cathedrals, and mosques, with high ecclesiastical dignitaries, to supplicate their respective divinities by prayer, incense, and in some cases, sacrifices, to lend them supernatural aid in destroying their enemies. Victory called out services of special thanks, while defeat led to renewed supplications. Each nation identified the purposes of God with its own interests and ambitions and saw no incongruity in doing so, even while pretending to itself that its God was the God of peace, good will, and universal brotherhood. It is this intimate connection between the "tribal instinct," or the sense of unity within a tribe or a nation, and all those things which make up its own special and peculiar world of the sacred, which constitutes the link between religion and morality on the one hand, and religion and patriotism on the other.

This social determination of the religious is seen in the constant creation of new religions. America has produced a great many, all amalgams of Christian doctrines and new cultural elements. Socialism and Communism also are largely religious for those who hold them dogmatically; they appeal powerfully to

the poor; they spread rapidly under suitable conditions; they then tend to modify or displace Christianity. A new religion is now developing in Russia. Lenin is already a saint; his tomb is the goal of thousands of pilgrims weekly; myths regarding him are growing rapidly; he bids fair to become a savior god.⁴⁰

Religion and Morality. The fundamental rules of morality are sacred because they are given by the gods, that is, they are held by tradition to be essential to group prosperity and individual happiness. The primary features of the political system, clans, chiefs, kings, and emperors are sacred, because ordained by the spiritual powers, and possessed of mana. In fact, whatever is believed to be essential to social strength, welfare, and prestige is readily endowed with the inviolate qualities of the sacred. Moral values arise slowly out of social experience, and become imbued with a sacred quality, usually as divine mandates, through myth and tradition. The initiatory rites which constitute a fundamental feature of education and the transformation of the individual into totemic membership; methods of food cultivation; the consumption of certain foods; matters of sex; and an endless variety of personal relations acquire sacred connotations. Private property and the patriarchal family are now widely held to be sacred; by those who believe society would fall asunder without them, they are said to be ordained by God. In the South in 1860, slavery was widely held to be a sacred institution and justified by Biblical precept, just as prohibition is now by some persons. It is in such facts that we glimpse the relation of religion and morality. It is obvious to us that many of the things which have been required, by one religion or another of its believers have not constituted, from our point of view, moral values. In fact, one may say that every form of bestiality, criminality, and immorality, according to our code, has been practiced in the name of religion, and that religious fervor and fanaticism have sanctified all sorts of causes. Moreover, there is a considerable field of religious activity which has little relation to morality.

Nevertheless, if we define morality as those modes of behavior believed to be essential for the preservation of group welfare, then we see that religion has everywhere been a powerful factor in enforcing individual conformity thereto. The religious sanction,

⁴⁰ See René Fülöp-Miller, *The Mind and Face of Bolshevism*, G. P. Putnam's Sons, 1927.

by its sacred and therefore inviolate nature, constitutes the most powerful psychic sanction for any rule of behavior to which man has ever been subject. In the absence of extensive scientific knowledge as to what rules of behavior were soundest from the standpoint of individual and social welfare, it was necessary that those rules which social tradition conceived to be closely linked with the prosperity of the group should be enforced by some suprarational sanction. It was also inevitable that they should be thus enforced, so long as man conceived the spirit world to be the seat of ultimate power in the determination of individual and social welfare. In view of the essential solidarity of primitive social life and the likelihood that the group as a whole would suffer for the delinquencies of any of its members, the supernatural theory of morality required the individual to live strictly in accordance with the rules which tradition believed would ward off demonic influences, or please the gods. Primitive thought is essentially fatalistic because it places human destiny in the hands of the gods; and an evil fate could be invited by violating a sacred taboo, or a blissful fate guaranteed by following faithfully the sacred commands.

The prominence of the luck element showed primitive man that the wills of the gods are capricious. Nevertheless, ritual was believed to be a means of controlling fate. From this point of view, it may, therefore, be said that *the moral code is an extension of ritual*. It is a mode of acting which will bring good luck. To follow the moral code, therefore, gives the believer mental peace and confidence. This follows regardless of the code. There is thus at all stages of social evolution a way of life which constitutes the religious, the sacred, or the holy way; and the more complete the dominance of the supernatural view in individual thought and emotion, the stronger the will to adhere closely to the path of virtue which leads to the preservation and future happiness of the soul. So firmly do these concepts grip the minds of some people that they lead to various forms of religious fanaticism. They also constitute an essential psychological background for all forms of religious persecution.

In this connection arises the question whether and how religion is related to happiness. It never occurs to the truly devout mind to complain, as many moderns do, that religion takes all the joy out of life. No doubt Puritanism is largely responsible

for the idea that goodness is synonymous with joylessness. But the question whether goodness, that is, living according to the sacred code, produces happiness is not to be answered in cavalier fashion. Sumner ⁴¹ declares that it is only within recent generations that men have had the courage to declare that it does not. But happiness is so much a state of mind that Sumner's answer overlooks the important fact that the believer finds comfort, peace, and a sense of safety in following his code, and is rendered unhappy, or filled with a sense of sin and shame, when he violates it. We shall see in a later paragraph that these psychic effects are dependent very largely on group sentiment and solidarity.

As related to morality, religion thus constitutes a way of life. It is the sanctified way; a way necessary for the believer's individual happiness, present and future; a way powerfully enforced by social opinion, because it is believed to be essential to the preservation of the life and the welfare of the group as a whole. The religious morality is necessarily a dogmatic morality, because the sacred rules require an unquestioning obedience. They are believed to represent the wisdom of the gods, and hence to be beyond improvement by mere human reason. On account of the fateful dangers that lurk about the human pilgrim, he is urged by religious authority to follow the straight and narrow path that leads directly to paradise. Along this path of life evil spirits are supposed to lie in wait to trip up the unwary. Any departure from the prescribed mode is, therefore, fraught with danger to one's immortal soul. The religious morality is powerfully reënforced by the sense of taboo which surrounds the sacred. That is, it carries with it, in the mind of the believer, the strong emotional fear of something at once dreadful and mysterious which may happen, if one violates the code.

It is this emotional fearsomeness which constitutes both the strength and the weakness of the religious morality. It is strong because of its deep emotional content. But it is weak because its very nature forbids doubt and hence checks that questioning, experimentation, and flexibility, by which alone improvement and readjustment of moral code to social change can be accomplished. It is weak because its authority rests on tradition, and because it contains within itself no means of checking its

⁴¹ *Folkways*, p. 9.

own validity in the light of life and experience. It is weak in a sophisticated society, because it must keep its supernatural basis intact. Doubt and skepticism sap this basis, and may leave it utterly without support.

It is here that appears the sharpest contrast between the rational and the suprarational sanction to conduct. As man emerges from the dogmatic-emotional morality of religious tradition into the critical-intellectual morality of scientific knowledge, he acquires freedom and power. A morality which is supposed to represent the will of God is a morality of tradition and authority, and hence holds the individual in the grip of the dead hand of the past. It does, doubtless, represent much of the wisdom of the ages, but it represents also its ignorance and superstition. A rational morality, however, seeks its basis in a knowledge of human nature and social life. Human physiology and psychology, social psychology, and the science of social relations and institutions furnish the basis for the life of reason, of which philosophers from the days of Plato and Aristotle to to-day have dreamed.

But it should not be overlooked that the abandonment of an absolute and fixed code is fraught with dangers. The relations and problems of life are extremely complex, and high intelligence is required to solve them with anything like success. Goodness, in the narrow religious sense, is no guarantee of happiness in a world so full of changes and so devoted to individual freedom as our own; but neither does freedom, governed by reason, furnish a ready entrance into individual utopia, for reason often lacks adequate experience and data to work out a truly rational solution. It is still true that the fearful soul, especially if also dull-witted, will find a conventional code a fairly safe, problem-solving, and trouble-avoiding guide amidst the perplexing uncertainties of life. On the other hand, the bold and quick-witted, if equipped with abundant knowledge of self and of his fellow men, may have more freedom, a richer and more varied experience, and yet live long and withal as happily as man may. Those religious leaders, who see the full import of the scientific view of nature and man, see also that the moral life, like any other aspect of life, is necessarily an adventure.⁴²

⁴² See H. E. Fosdick, *Adventurous Religion*, Harper and Bros., 1927.

RELIGION AND THE MODERN WORLD-VIEW

The Medieval Background. In approaching a study of recent religious changes it seems necessary to sketch briefly and inadequately the background of medieval conceptions from which present world-views have evolved. It is less necessary to do this thoroughly because a considerable body of current tradition received its form and substance at the hands of medieval theologians. That tradition is thoroughgoing in its supernaturalism. No less than the primitive, the medieval mind saw in nature and human experience the operation of mystical power. The realm of the sacred was large and impressive. The authority of ecclesiastical jurisdiction was enormous, its scope extensive, and its punishments terrifying. The list of sins, or offenses against God, mortal and venial, was sufficiently long and varied to hold the believer in close subjection to religious authority in his daily round of life. Consonant with the general dominance of mystical, or theological, thought was the nearly complete absence of scientific interest. As Galileo said, when he took his new telescope to Florence to show the professors the recently discovered satellites of Jupiter: "They would see neither them nor the telescope. These people believe there is no truth to seek in nature, but only in the comparison of texts."⁴³

The Fact of Religious Change. We have seen that the religion of any time and place is an integral part of the current culture. It changes as other aspects of culture change. A glance at ancient history, for example, shows that numerous religions have flourished in different cultural media. In every case, Egypt, Babylonia, Assyria, Greece, Rome, barbaric England, or elsewhere, the religion was closely woven into the very texture of the cultural pattern. Moreover, there is every reason, so far as objective data are concerned, for holding that both the psychological manifestations and the material instruments of religion are much the same everywhere. The ancient temples, altars, and wayside shrines, erected to a swarming pantheon, were the scenes of amazing miracles and divine visitations. No less than the cults of the savage, the Paganisms of Greece and Rome were hard-working religions constantly utilized by both individual

⁴³ John H. Randall, *The Making of the Modern Mind*, Houghton Mifflin Co., 1926, p. 233.

and state as aids in meeting the exigencies of life. But they passed into the dark and forbidding limbo of outworn superstitions with the dawning of new historical epochs. The world's most marvelous temple, unsurpassed in beauty and grandeur, was erected to Pallas Athena, the virgin patron goddess of Athens, whom no one now worships.

In the process of change, there is a constant transfer of the old wine to new bottles. This is illustrated in many ways by the history of Christianity. Its origins are rooted in the ancient cults of the eastern Mediterranean basin. Osiris and Horus in Egypt, Adonis and Attis in Syria and Phrygia, Mithra in Persia, Apollo and Dionysus in Greece, and Hercules in Rome, were all savior gods. The chief festivals for several of them came near the twenty-fifth of December. In fact, all the Christian festivals have their pagan antecedents. "We must not forget that Christianity was not all Christian; that it never has been so. It is, and was from the first, drawn from all antiquity, and preserves for us things that were sacred untold ages before there was a temple at Jerusalem."⁴⁴ The subsequent history of Christian doctrine shows it to have received formulation in creeds only after strenuous conflicts of opinion and in consequence of prevailing modes of thought. The spread of Christianity was usually by way of additions to, and transformations of, pagan worship rather than a clear substitution therefor.⁴⁵ Its history, therefore, shows ancient forms given new names and a new vitality. The wayside shrines of pagan France were adorned with a crucifix, and a dying faith, transformed and revitalized, once more inspires the simple peasantry with hope and confidence. There is thus a great similarity in the essence of religious practice and experience, regardless of the stage of social evolution. In the world-view of a devout Catholic or Southern Baptist to-day, there are elements as ancient as primitive thought; and in that of advanced theologians there are elements less modern than much of the thought of Socrates, Plato, and Aristotle.

Another feature of religious change in consequence of general social change is the transformation of theology into superstition.

⁴⁴ J. T. Shotwell, *The Religious Revolution of Today*, Houghton Mifflin Co., 2d ed., 1924, pp. 44-45.

⁴⁵ Edward Carpenter, *Pagan and Christian Creeds: Their Origin and Meaning*, London, Allen and Unwin, 1920; F. C. Conybeare, *Myth, Magic and Morals. A Study of Christian Origins*, The Beacon Press, Inc., 3d ed., 1925.

The accepted theory of the nature and power of divinity is theology; superseded views are superstition. In Tylor's *Primitive Culture*,⁴⁶ there is a famous illustration. When the white man invaded Zulu territory, he broke the laws, violated the taboos, and profaned the sacred objects of the chief god, Unkulunkulu. The power of the god was soon destroyed, so that an old Zulu was able to say that his name "is like the name of a very old crone, which has not the power to do even a little thing for herself, but sits continually where she sat in the morning till the sun sets. And the children make sport of her, for she cannot catch and flog them, but only talk with her mouth. Just so is the name of Unkulunkulu." The early Christians did not deny the reality of the pagan gods. "They were as sure of that as of the reality of Christ."⁴⁷ But with the triumph of Christianity, the ancient beliefs became gross forms of superstition. Likewise, many Protestant sects look upon various aspects of Catholic theology as superstitious, just as Unitarians and Episcopalians smile at what seems to them the credulity of Methodists and Baptists.

Belief as a Social Force. Finally, we may here note that belief, even though erroneous, can be as powerful a social force as truth. The conduct of individuals and groups is necessarily controlled in large part by the ideas they entertain of themselves and the world round about. We have repeatedly noted that magic and religion give man an increased confidence in the conduct of his affairs. The most striking proof of this psychic value of mere belief is seen in the various cases where primitive groups have lost their will to live, their courage to face the uncertainties of life, in consequence of losing the faith in their tribal divinities. Missionary zeal has undoubtedly been a factor in destroying the vigorous life of certain savage groups, by flouting and bringing disrepute upon their spiritual guides and protectors. Certain Melanesians seem to die from the slightest ailments apparently because entirely indifferent about living. Their fertility has greatly diminished and their numbers in many cases are a mere fraction of what they were two generations ago. No doubt several other factors, such as European diseases and forced labor, have contributed to this result. Nevertheless, we may reasonably suppose that the destruction of faith in their gods, accompanied as it was

⁴⁶ *Op. cit.*, Vol. II, p. 285.

⁴⁷ Shotwell, *op. cit.*, p. 37.

by evidences of their powerlessness to resist the white man's will, left them without sufficient courage to face the ever-recurring crises of adjustment to a new world.⁴⁸

But the full account of the social effects of erroneous beliefs requires also that one give due weight to the terrorism, the waste of life and property, and the unfulfilled hopes and efforts resulting therefrom. If superstition gives confidence and raises hopes, it also fills the mind with unreal and energy-destroying terrors. The vagaries of religious belief and practice are truly unbelievable. It would seem that, having created a pantheon of fictitious creatures, man's imagination ran riot in attributing to them forms, desires, and characters. Millions of lives have been sacrificed to blood-thirsty divinities. At the dedication of a single temple in ancient Mexico, not less than 80,000 human victims are said to have been slaughtered. The sacrifice of property and persons, especially wives, at death; the inhuman mutilations found nearly everywhere; the fanatical practices and self-torture of religious zealots; the terrors of witchcraft, which in western Europe alone numbered its victims by many hundreds of thousands; the almost equal horrors of persecution and the Inquisition; all these are illustrations of the dreadful social consequences of ignorance and the passions that are easily aroused by religious beliefs because of their essentially dogmatic character.⁴⁹

Not the least disservice rendered by religious beliefs and organized religious forces in recent times has been the steady opposition to the progress of scientific thought. From the beginning of the scientific advance 300 years ago until the present moment, there has been no new expansion of the field of knowledge and research that has not been impeded by religious orthodoxy. The opposition to the new views in astronomy and physics was somewhat later followed by similar opposition to the advances of geology and biology. To-day, this latter is manifesting a recrudescence which is aided somewhat by opposition to the promulgation of psychological and sociological findings. Thus even now, when religious toleration has become a recognized principle of our culture, and when religion has become largely an individual matter, there still remains in religious obscurantism a

⁴⁸ W. H. R. Rivers, *Essays on the Depopulation of Melanesia*, Cambridge Univ. Press, 1922.

⁴⁹ L. F. Ward, *Applied Sociology*, Ginn and Co., 1906, pp. 65-80.

powerful social force resisting the progress of that knowledge by which alone man can free himself from the evils and terrors of erroneous interpretations of the world. While certain benighted Protestant sects are busy preventing the teaching of evolution in our schools and colleges, the Catholic hierarchy is still busy placing books on the *Index Librorum Prohibitorum*, where nearly all of the great books of recent centuries have been listed.

Social Conditions Affecting Recent Religious Thought and Practice. In view of the close connection between cultural change in general and religious change in particular, it is not surprising that the momentous social transformations of the past three centuries, and particularly of the last century, should have deeply affected both theological views and religious custom. We may briefly outline the primary influences of the new social conditions under the following headings: Industrialism and Urbanism; Democracy and Individual Liberty; the Rise of Science; the Idea of Progress; and the Process of Secularization.

1. Industrialism and Urbanism. The rise of the factory system and the growth of cities are mutually interdependent, and constitute the outstanding material differentiations of modern from medieval times. Both date from the latter part of the eighteenth century. Together they have resulted in an almost complete revolution in the pattern of social life and in the daily activities and social relations of most of the people living in the western world. While they are themselves direct results of the scientific advance mentioned below, they have had immediate influences on religious thought and practice. The early stages of the rise of Capitalism were deeply affected by the Protestant Revolt and the spread of Protestant theory and morality.⁵⁰ The rise of Protestantism synchronizes with the rise of the new commercial class; and the triumph of Protestantism went hand in hand with the ascendancy of the economic virtues of thrift, industry, material accumulation, and regard for the rights of property. Puritanism in England, for example, "had its own standards of social conduct, derived partly from the obvious interests of the commercial classes, partly from its conception of the nature of God and the destiny of man." These standards sapped the ebbing strength of

⁵⁰ Werner Sombart, *The Quintessence of Capitalism. A Study of the History and Psychology of the Modern Business Man*, trans. by M. Epstein, E. P. Dutton and Co., 1915; and R. H. Tawney, *Religion and the Rise of Capitalism: A Historical Study*, Harcourt, Brace and Co., 1926.

Feudalism. With their emphasis on the rights of private conscience and salvation by grace alone, without any intervention by self-constituted authority, the Puritans in the Cromwellian era overthrew the power of the authoritarian state in England. These influences prepared the way for the ultimate triumph of both commercialism and democracy in the Revolution of 1688.⁵¹ This alliance of Protestantism and commercialism has been one of the dominant influences of modern times. It has made Protestantism the primary religion of the bourgeoisie, the middle class, which has largely become the ruling class in democratic states. It has made Protestantism a stalwart defender of the existing social order. The increasing influence of the working class has, therefore, resulted in considerable conflict between social radicals and conservatives in the Protestant communions.

The deepest influences of industrialism on thought and conduct have been due to urbanization of the population. This has removed many millions from immediate contact with and dependence upon nature, and made them dependent upon machinery and industrial routine. Whereas the farmer's life still seems to be largely at the mercy of some capricious and wilful element, the city man goes to work with the regularity of the clock. The farmer's crop may be ruined by inscrutable and uncontrollable weather influences, frost, heat, drought, flood, or by insect pests; but the city man, whether worker or salaried professional, draws his pay with little or no regard for weather changes. The chance element is by no means eliminated, but it is reduced and its nature has changed. It is no longer due to some mysterious potency back of nature, but to the play of human forces. Thus the city environment leads to a routinized existence for great numbers of people; a routine, moreover, surrounded with vast and varied mechanisms, all evidences of man's control over the conditions of his daily life.

In the second place, the city environment releases the individual from social pressures, at the same time that it multiplies the opportunities for worldly pleasures. The psycho-social controls over the individual are greatest in the simple homogeneous community where each is subject to the scrutiny of all, and all must conform to the group mores or lose caste. Individual freedom from such restraints reaches its maximum in the metropolitan

⁵¹ Tawney, *op. cit.*, pp. 231-232.

environment. Now there is no greater truth in religious psychology than that the strength and vigor of faith in things unseen is dependent on the constant communion and fellowship of the believers. Thus both the objective and the psychic conditions of social life in the city have tended to undermine religious faith and practice. The city man does not feel direct dependence on a mysterious Providence; the utility to him of faith and prayer is greatly reduced, as compared with his rural and small-town cousins. The multitude of amusements, the need of outdoor exercise on Sunday, and other reasons make church-going more sporadic and less satisfying. To meet this situation many churches have multiplied their activities and attractions, some even bordering on the sensational.

2. Democracy and Individualism. In some respects the most momentous influences on modern thought have been exerted by the spread of doctrines of individual rights and liberty. This has tended to shift the emphasis in religion from its social to its individual aspects. Primitive religion, though almost entirely a social force, sometimes had an important individual side. The visions and other personal experiences with the divine powers during initiation were clear, vivid, and cherished as secret personal matters.⁵² But even so, the religion of a primitive society was its most powerful cohesive force. Common ideas of the sacred, common belief in the same protecting divinities, a deep consciousness of a common origin at the hands of the same mysterious creative power and of a common destiny under the guidance and protection of the same providential beings, all these and their associated emotions gave a remarkable solidarity to primitive group life. So close is religion to the center of group consciousness that Lester F. Ward very properly called it "the group sense of safety."⁵³ Amidst the perils of the actual and the imaginary world, religion enforced upon the individual with unvarying rigor a strict conformity to the ways ordained by the gods. This conformity was no doubt believed to be of value to the individual, but its basic value was the safety and welfare of the group. The gods, the myths, and the rituals were essentially group possessions, insults to them were group insults, respect and reverence for them were respect and reverence for the group and its destiny.

⁵² Lowie, *op. cit.*, especially Chap. i.

⁵³ *Pure Sociology*, The Macmillan Co., 2d ed., 1914, pp. 134, 185, and 187.

This situation remained substantially unaltered until almost our own time. In all primitive societies and in all pagan civilizations, religion and statecraft have been inextricably interwoven. In fact, law, morals, and political organization seem to have grown out of the mystical magico-religious rules, whereby a social life in conformity with the will of the gods was enforced. At no time, until recent modern days, was there a definite and formal separation of the religio-ecclesiastical and the secular authorities. King and priest were often one and the same person. Even when the functions of ruler and interpreter of the divine will had been differentiated for most purposes, the King not infrequently remained the highest priest. He was the anointed of the Lord, called to rule over His people. The state was a sacred institution and the church a state institution, a powerful bulwark of the accredited powers. The medieval conflict between state and church was, however, an irreconcilable conflict, because it was between an emperor claiming to be the vicegerent of God and the holder of supreme temporal power, and the Pope claiming sole authority in spiritual matters and dominion over worldly rulers.

The separation of church and state was both a cause and an effect of the evolution of religious ideas and practice. It was in part a consequence of the promulgation and acceptance of the doctrine of salvation by faith, and by faith alone without the intervention of any priestly or ecclesiastical power. The very essence of Puritan theology was that the individual could be saved by grace and that this grace was a free gift direct from God. Since the saving of the soul was viewed as the supreme end of the earthly pilgrimage, this new theory involved the individual in the necessity of preparing and maintaining those outward, and especially those inner conditions, whereby the voice of God in his soul may be heard and the witness of the spirit may be felt. Obviously, such doctrines struck a fatal blow to authoritarianism in both church and state. They robbed the state of its divinity, and undermined the efficacy of ritualism, symbolism, and priestcraft. By giving a religious sanction to the rights of private conscience, they sanctified resistance to the established authorities and lent powerful support to individualism and democracy in both religious and political matters.

The separation of civil and ecclesiastical authority, followed by the definite triumph of the ideals of democracy and individ-

ualism, have deeply affected the growth of religion in western countries. Such separation is by no means complete in a number of these countries; it has gone deepest in the United States, England, and France. In all these countries, it is a questionable advantage for a politician or a statesman to be truly notable for his piety, though he can seldom be an avowed atheist or agnostic. Nevertheless, the influence of religious attitudes upon the affairs of state are still immense, though exerted indirectly through the ballot instead of directly through the sacred personality of the King. An illustration is the success of the Fundamentalists in securing anti-evolution legislation.

But conformity has ceased to be a matter of direct concern to the secular powers. Religious liberty has received constitutional guarantees. Religion is held by the courts to be a personal matter, a personal relation between the individual and his God. This definite achievement of religious toleration has deeply affected the trend of religious thought. The unity of the orthodox view once having been broken, the way was open for a multiplicity of new orthodoxies. But there is no logical end of such a process until we reach the perfect right of every individual to accept or reject theological views, according to his own private conscience and judgment. With the overthrow of religion as a state force, the emphasis was placed upon individual salvation. While many new sects each claimed a certain monopoly over the true, divinely ordained way to a saintly existence, the net effect of the clamor of sectarian zealots in an age of declining religiosity has been to bring into increasing favor the doctrine that moral worth is more important than theological opinion. This may be said to be the last step in the breakdown of the closed system of orthodoxy with which the modern era opens, for it would make possible the salvation of the rank unbeliever, provided he lived a moral life. At this extreme of modern thought we have not even salvation by faith and beliefs, to say nothing of salvation by ecclesiastical and ritual formalism. In other words, the combined effect of these various influences has been to produce a strong current toward theological atomism, or extreme heterodoxy. The progress of these tendencies has furthered the secularization of the state and tended to reduce the influence in the larger affairs of social life of religion, viewed as a body of organized doctrines and rituals relating to the supernatural.

3. The Scientific Revolutions. The gradual emergence and spread of a rationalistic view of man and nature is one of the most striking features of recent cultural evolution. The first and most revolutionary blow to the medieval type of philosophy was struck by Copernicus and Galileo. Previous to that time, the view had been nearly universally accepted, as a part of the creation myth, that the earth was made as a special abode for man, and that the sun, the moon, and the stars had been placed in the heavens to light, warm, and beautify man's dwelling place. There was, therefore, intense ecclesiastical opposition to the theory that the earth revolved around the sun. It was at length realized that the earth is a very small part even of the solar system. The steady progress of astronomy showed that ours was only one of many such solar systems and that the movements of the heavenly bodies were governed in a most marvelous way by fixed laws. The contributions of Kepler, Newton, Brahe, and others made it possible for Laplace to call his astronomy, "Celestial Mechanics." More recently the progress of astronomy has shown that even our universe though unimaginatively enormous in extent is, nevertheless, only one among many.

Another significant revolution in the creation myth was effected by the development of geology. This showed that the evolution of the earth has occupied an enormous period of time. It became impossible to reconcile the findings of geology with the story of Genesis. Even more revolutionary was the effect of the development of the Darwinian theory, whereby a mechanical, or natural history, explanation was given to the evolution of animal life. It was no longer necessary to assume the activity of a special creation to account for the myriad forms of plants and animals, because they could all be accounted for by the processes of organic evolution.

A. The Naturalistic World-View. As these and other sciences advanced more steadily and then more rapidly, the area of phenomena explained by natural law was greatly extended, and the area of those still believed to be due to supernatural forces was diminished. The animistic world has gradually receded, and the hosts of its pantheon are seen to be figments of the imagination. At the same time, a realistic world-view advances, enlarges, and clarifies. We have seen that from the earliest times man has considered the wonderful or the unusual as evidence of hidden

forces, while the usual or the commonplace was the arena of natural forces. The steady progress of science has reduced one sphere of phenomena after another to the order and system of natural law. The wonders of science now replace the wonders of creation in our thought, and the emotional accompaniment has been fundamentally altered. Latterly, even the apparently haphazard and unregulated phenomena of the weather have been subject to extensive scientific investigation and reduced to the orderly processes of natural cause and effect. While our grandfathers might readily see in thunder and lightning manifestations of a Divine Providence, and while the prayer books even yet retain prayers relating to rain and weather phenomena, the educated public has now universally accepted the view that the weather is no more to be affected by divine supplication than is the movement of the sun or the stars. It may, therefore, be said without fear of contradiction, that even the advanced theologians agree that all physical phenomena are governed by natural law, while some of them agree that also vital, psychical, and social phenomena are similarly governed. We have thus arrived at a concept of a *self-regulating universe*.⁵⁴

Such a view permits no basis for miracles, in the sense of supernatural intervention in the orderly succession of natural cause and effect. It is consonant, however, with the view that the evolutionary processes are themselves creative, in the sense that ever new combinations of natural forces and elements result in new forms of matter and life. The modern chemist utilizes his knowledge to produce new and marvelous synthetic creations in the laboratory, while the plant and animal breeders have similarly created a host of new plants and animals for both food and æsthetic enjoyment. Through knowledge, man is thus able to guide and to accelerate the creative processes themselves.

These views, to be sure, are far from widely accepted as yet. They merely represent the tendencies of modern thinking under the propulsion of scientific advance. Most theologians and metaphysicians still assume a God as a creator and sustainer of the universe. They reconcile their belief in God with the scientific view by identifying Him with the world order. Natural law thus

⁵⁴ For the significance of this for problems of social philosophy and ethics, see the author's "Individual Freedom With Some Sociological Implications of Determinism," *Jour. of Phil.*, Vol. 22, 1925, pp. 617-634.

becomes an expression of the Divine Nature. Such a view antagonizes the traditional view that the nature and will of God were made known by a special revelation. If natural law is universal, and the causes of all things contained within the natural processes themselves; and if the divine nature is manifested in natural laws; then the discoverer of these laws, the scientist, becomes a new kind of high priest, and research, rather than mystical revelation, the means whereby the nature and will of God are made known. Consonant therewith the belief in miracles, that is, the suspension of natural law, declines; as does also that type of prayer which supplicates the Deity to so intervene. Such views strip the concept of divinity of its personal qualities and renders God useless, so far as direct aid is concerned, in times of stress or bad luck. They do not permit one to think in terms of an active, personal, spiritual Being who gives attention to the processes of nature and the experiences of individual life.⁵⁵

B. *Effects of the Naturalistic World-View.* The general effect of the spread of scientific concepts has thus been to reduce the scope and vitality of religious belief. It has well-nigh destroyed the practical utilitarian aspect of religion, that is, that aspect of religion which sought control of mystical powers for conscious human purposes. This undoubtedly accounts for the indifference of many educated moderns to religious matters. This is sometimes called an age of doubt, or an age of religious dissolution. The primary fact indicated thereby is the sharp and decisive decline of the *bona fide* belief in spiritual beings and personal divinities and the accompanying faith in their functioning in the affairs of daily life. An age of authority is being superseded by an age of scientific verification; faith gives way to works. Science though still in its infancy has already given man control over many conditions of his life; and it has so rapidly and so clearly improved human life that its influence becomes more and more pervasive, and the enthusiasm for its further advance increases. It is not too much to say that science has already become the dominant influence in the evolution of western culture, or even world culture. Its history shows also that it

⁵⁵ See the author's address "Reason versus Authority as a Guide to Living," *Amherst Graduates' Quarterly*, August, 1925; also H. E. Fosdick, in *Harper's Magazine*, Vol. 153, 1926, pp. 362 and 364.

is the unrelenting foe of magic and religion in their traditional forms.⁵⁶

What Matthew Arnold⁵⁷ said in 1873 is even more true to-day: "To reinthroned the Bible, as explained by our current theology, is absolutely and forever impossible!—as impossible as to restore the feudal system, or the belief in witches." Fundamentalism has had a recent revival in this country, but it inevitably fought a losing battle. Culture becomes more and more saturated with the logic of science. Gradually but surely the findings and the spirit of the scientific method filter down from university and college to high-school and the general public. Books of popular science are now among the "best sellers."

Because science gives control, it raises human confidence. The mental peace and confidence the savage derived from the belief that a god would aid him is definitely secured by the knowledge which science gives. Man is able to approach nature with confidence in her regularity and uniformity; with the hope of ever fresh and useful discovery. Science has already given man a new heaven and a new earth. It has remade his conception of himself. It has raised the vision of an entirely new earthly paradise which man may create for himself, when he has gained command not only of physical nature, but of himself and the social forces which his group life creates.

C. *The New Mysticism.* Science is thus transforming religious thought and practice. Religion may, in fact, be clearly said to have two aspects, one, a theory and method of dealing with the occult powers believed to be behind natural phenomena; the other, the subjective experiences believed to result from and to accompany a direct, immediate, and "intuitive" apprehension of the deity. The former, as we have seen, is practical, being designed to accomplish ends consciously useful to the individual or the group. This is the aspect kept in the foreground in the preceding pages. The other aspect may be called mystical experience. It is subjective and largely valued for itself, though sometimes useful in strengthening individual will and in faith cures. It is also individual, although the specific forms which it takes are always dictated by the surrounding cultural media. Primitive religion

⁵⁶ John W. Draper, *History of the Conflict Between Religion and Science*, D. Appleton and Co., 1896; 1st ed., 1874; and Andrew D. White, *A History of the Warfare of Science with Theology in Christendom*, D. Appleton and Co., 1896.

⁵⁷ *Literature and Dogma*, The Macmillan Co., 1906, "Preface," p. viii.

emphasized the difference between the usual and the unusual; advanced religions emphasize the difference between the natural, or physical, and the supernatural, or spiritual. Concurrently with the rise of science as an explanation of natural phenomena, there has been an increasing tendency to emphasize subjective experiences as proof of the validity of theological concepts. This tendency harmonizes with the spirit of individualism. As God disappears from direct manifestation in nature, He is believed to manifest Himself to the believer in immediate communion. Conversion, visions, the peace and confidence following prayer, "wonderful feelings," a sense of enlargement and power, are looked upon as evidences of the divine presence and power. Most modern "miracles" have been in the form of faith cures. At the same time some of the most notable and successful new religious movements have been the mental healing cults which effect a hybrid combination of psychological science, especially suggestion, with mystical concepts. Here belong Christian Science, New Thought, and much of Psychoanalysis.

Such phenomena can be studied objectively only when viewed in broad sociological perspective. Here we discover that the similarity between primitive and modern religions is striking. The phenomena of possession are as old as the animistic theory. The Indian boy, fasting alone in the wilderness, never fails to have the awaited vision. The primitive, like the Christian mystic, has clear experience of communion with his divinities, and of an access of power, mental exhilaration, and optimism resulting therefrom. At all times, the believer must depend on his emotional state to distinguish the natural from the supernatural. To him the clearest evidences of the exertion of mystical power are his emotions of awe, peace, excitement, trance, or other vivid mental states. But there is no ground for supposing that these experiences are less clear for the patrons of the medicine man, than for those cured at the shrine of St. Anne de Beaupré. Nor are they different in psychological nature. Their difference consists in their cultural setting, and hence in their outward forms and symbols.

The progress of psychological knowledge tends to discount all subjective mystical experiences and faith cures as evidence of personal spiritual beings. Drugs and opiates are found to be powerful inducements to such experiences. Hunger, thirst, bodily

privation and hardship, nervous strain and exhaustion are often followed by visions, hallucinations, and divine visitations.⁵⁸ Even the milder and very common feeling of peace and confidence following prayer, the attitudes of self-abnegation, the emotions of unworthiness, the loyalty to high purposes, all have their purely secular counterparts and are explained in terms of natural cause and effect. The phenomena of conversion and emotional excess commonly witnessed at revival meetings may be explained as due solely to the power of suggestion and crowd intimidation working on minds lacking in critical capacity. Modern psychology has revealed the almost limitless power of belief, faith, and suggestion to give to the individual those experiences which his social tradition has taught him to expect. "The will to believe is as deep as life itself."⁵⁹ It appears that this "will to believe" is the basic psychological necessity for the inner religious experiences. As William James says,⁶⁰ "Faith-state and mystic state are practically convertible terms." Professor Shotwell⁶¹ expresses the same idea thus, "Religion with its *semper idem* sanctifies its own stimuli." Faith thus insures its own inner justification by inducing corroborating subjective reactions.⁶²

It is not remarkable that religious leaders denounce doubt as sinful, for doubters fail to have the mystical experiences. When the religious leader calls upon his followers to trust the clear emotions of their hearts rather than the doubts of their minds, he is true to his profession and his faith. It is in what we call our hearts that are deposited the emotional values which cling to race habits and sanctify the sacred traditions of our social group. Skepticism and curiosity regarding their essential validity are late cultural acquisitions and always and everywhere impossible for most people.

If these views correctly represent the drift of opinion, then the current effort to reconcile science and religion by holding that religion deals with the spiritual sphere of human experience and science with a totally different sphere, is doomed to defeat. This reconciliation has not proven satisfactory, because science takes the entire world of knowable things as its province. If, there-

⁵⁸ J. H. Leuba, *The Psychology of Religious Mysticism*, Harcourt, Brace and Co., 1925, Chap. ii.

⁵⁹ Shotwell, *op. cit.*, p. 141.

⁶⁰ *The Varieties of Religious Experience*, Longmans, Green and Co., 1902, p. 424.

⁶¹ *Op. cit.*, p. 140.

⁶² See also Leuba, *op. cit.*, p. 318; and George A. Coe, "The Sources of Mystical Revelation," in *The Hibbert Journal*, Vol. VI, 1907-1908, p. 367.

fore, anything can be known regarding the spirit world from which religion derives its inspiration, then science would claim the right to investigate for the purpose of determining the reality of spirits and their mode of functioning. Indeed, these are the problems set for itself by what is called "psychical research." Such research has been confronted by two serious difficulties. It is seen to be impossible to conceive of spiritual existences in purely spirit form, that is, without any admixture of materiality. Spirit without matter is a formless void. Secondly, there is the impossibility of apprehending the existence or manifestation of spiritual energy without materializing it, or its effects. Such materialization has been necessary, from the standpoint of scientific validity, in order to avoid the illusions and delusions of pure subjectivism. There have been numerous mediums who have attracted the attention of scientific men during the past quarter century. No evidences of spiritual powers or of existence after death have, however, thus far been produced that seem convincing to any but credulous minds.

It would seem then that the first effect of the new mysticism has been to turn the searchlight of scientific psychology upon those subjective states which have been interpreted as evidences of direct manifestation of spiritual powers. The net result to date has been to enhance the value of the naturalistic explanation of such states, and to greatly reduce popular credulity with respect to them.

D. *Science and Orthodox Beliefs.* The essential belief of organized religion in any age is faith in a God or gods responsive to human supplication. A second belief of almost coeval importance is faith in the immortality of the soul. It should be obvious that neither of these beliefs can receive the implicit and unquestioned acceptance in an age of science and skepticism, which is accorded them in an age of myth, magic, and belief. It is clear to any social observer that these beliefs are less firmly and widely held to-day than they were even a generation ago. There is every reason to suspect that the primary reason is the spread of scientific concepts. Some interest, therefore, attaches to the results of an investigation of the extent to which these primary beliefs are held by American scholars and men of science. Such an investigation yielded the following results: ⁶³

⁶³ J. H. Leuba, *The Belief in God and Immortality*, Open Court Pub. Co., 1916.

PERCENTAGE OF BELIEVERS ACCORDING TO PROFESSIONAL FIELDS

Believers in the God of the Churches	Physical Scientists	Biologists	Historians	Sociologists	Psychologists
Lesser Men	49.7	39.1	63.0	29.2	32.1
Greater Men	34.8	16.9	32.9	19.4	13.2
Believers in Immortality					
Lesser Men	57.1	45.1	67.7	52.2	26.9
Greater Men	40.0	25.4	35.3	27.1	8.8

These results are based on answers to a questionnaire sent to 1,000 men, who were listed in Cattell's *American Men of Science* or in the membership of American learned societies. About three-fifths were classed as men of lesser grade. Such results are only indicative, but probably give a reasonably accurate picture of the extent of these essential beliefs among scientists and scholars. As Professor Leuba says:⁶⁴ "Should there be no ground of belief other than physical phenomena and inner experiences, then, for those who are acquainted with modern scientific conceptions, there could be no belief in God." Such a conclusion is far from universally accepted even among first class scholars and scientists; but disbelief has spread far enough to greatly undermine the vigor of religious faith, and to strike with a sort of palsy that ecclesiastical power which at one time terrorized even earth's mightiest by threats of excommunication, rigidly enforced moral rules, aroused populations to the heroic ventures of the crusades, and carried on the horrors of the Inquisition for generations.

4. The Idea of Progress. Another feature of our social tradition affecting the evolution of religious belief and practice is the idea of progress, a very recent cultural development. It is an "idea-force" peculiar to the western world. It is a consequence of the growth of knowledge and the marvelous material advancement resting thereon. Together with the deep impression made by the doctrine of evolution, the idea of progress has permeated all modern thought with the concept of change. If all things change, then religious postulates and doctrines also must change. But such a concept is difficult to reconcile with the presuppositions of orthodox theology. In all societies, religion rests on ancient tradition; its truths are sacred and authoritarian; to doubt them is in itself a sin. Consequently, the introduction of the

⁶⁴ *The Psychology of Religious Mysticism*, p. 304.

idea of progress throws the whole body of theological beliefs into the field of controversy. Division of opinion alone would tend to destroy the authority of doctrines and thus undermine their power. But when there is added the idea that the doctrines should undergo evolutionary improvement, and especially when it is seen that some elements of the faith that were once implicitly accepted have been rejected, then doubt as to the validity of the doctrines becomes more reasonable and widespread. Corresponding therewith is a tendency for religious leaders to concentrate emphasis on a few major articles of faith and to regard as relatively unimportant most of those beliefs which separate the sects. There is thus a movement toward a new and fundamental unity among Christian denominations along with a widened latitudinarianism, an increased scope for individual opinion.

5. The Process of Secularization. The combined effects of all these modern influences is to produce *a process of secularization* of both individual and social life.⁶⁵ All primitive and ancient cultures were thoroughly religious. The same was true of western culture till the close of medieval times. They were all saturated with the influences and controls of religious beliefs and institutions. Our own is undoubtedly the most secular culture the world has yet seen. A brief survey will demonstrate this. We see the secularization of the state in the complete disappearance of the divine right of kings and the faint hold which the doctrine that "the voice of the people is the voice of God" has upon current thought. The secularization of law follows from that of the state. We see the secularization of the family in the growth of civil as over against sacramental marriage, in the decline of family worship, and the increased freedom of divorce. The secularization of education is seen in the growth of the public school, in the compulsory attendance thereon, and in the slight attention to religious teaching therein. It is seen also in the transfer of colleges and universities from denominational to secular status, in the relative unimportance of theological schools in the educational system, and in many other ways. In all the great universities, it is no longer considered good form to inquire into a man's religious beliefs before employing him; agnostics hold chairs in Christian colleges. The sciences, pure and applied,

⁶⁵ Shotwell, *op. cit.*

play an ever-ascending rôle in education, both popular and advanced. All fields of thought reflect the same influences. Philosophy becomes less theistic; history and literature deal less with myths and legends having sacred implications.

Likewise, there has been a vast secularization of morality. In the backward community, such as the isolated farm village, it is still true that goodness is largely identifiable with the observance of those mandates looked upon as God's commands. Moreover, the application of these commands by local sentiment to widely varied situations tends to make the scope of sacred morality as broad as public and private life. As over against that, the modern tendency is to embody in law all those rules and regulations of private behavior which public interest seems to require, and to leave to the conscience of the individual and the psychic pressures of social life the enforcement of the sphere of private morals. Even charity has become an organized business, mostly in the hands of the state and state-chartered organizations. It is governed less and less by maudlin sentiment, the desire to save souls and to store up treasure in heaven, often as a compensation for earthly wrongdoing; and more and more by principles of individual and social utility arrived at by psychological and sociological research. Its motivation ceases to be the emotional satisfactions of givers seeking a subjective feeling of righteousness and becomes the demonstrable utility of a social life that is decent and efficient.

All this is not to say that the influence of religious belief and institutions is small; it is still enormous. But it is mainly indirect rather than direct. It works through the emotional and rational attitudes of individual citizens rather than through the immediate control of statecraft. It is an important, and probably still essential, factor in enforcing a general observance of the conventions of behavior, though there are few who would wish any of the major institutions restored to complete sectarian control. Thus the separation of church and state, the growth of democratic individualism, the progress of science, and other features of recent cultural evolution have already effected a far-reaching transfer of the major interests and activities, individual and social, from religious to secular control. Supernaturalism gives place to naturalism; otherworldliness to worldliness. If the major interest of the medieval world-view was to prepare

and save the soul for a blissful hereafter, the major interest of the modern view is to prolong earthly existence and improve its quality. Moreover, as this life is made longer and happier, the interest in a life hereafter diminishes.

CONSTRUCTIVE TRENDS IN RELIGIOUS EVOLUTION

The Present Crisis. In view of the rapid spread of the logic of science, the question is being raised whether it is possible to develop a religion based upon a purely naturalistic world-view. If one studies the evolution of philosophical thought, he observes that, whereas primitive theology was grossly animistic, peopling the world with an endless variety of spirit agents, there is everywhere a tendency in advanced thought for multiple spirits to be replaced by One, and for this One to be thought of increasingly in impersonal, non-anthropomorphic ways. In advanced modern thought, even among some of the theologians, God ceases to be a person and becomes an expression for the vast impersonal energy pervading the universe and bringing all things to pass. We have noted that science and theology are reconciled by many modern thinkers who identify God with the natural laws of the universe, which may then be looked upon as an expression of the divine nature. This, however, furnishes a somewhat ineffective basis for the emotional appeals and values which are so important in the religious life.

The great crisis, therefore, in theological thought in our own day is the question whether traditional religious attitudes and forms can be continued in a world in which God ceases to be a person. If one may judge by the increasing indifference toward traditional theology in the more highly educated Protestant circles, he would be warranted in saying that the emotional content attaching to the conception of God, which has since immemorial time embodied and symbolized the greater part of religious values, has largely disappeared. At the same time, it may also be observed that men have learned how to live longer, healthier, and happier. It would seem possible, therefore, with the greater development of the sciences of life, mind, and society, for man actually to acquire a scientific basis for an ever more and more perfect individual life and social organization. The contributions of psychology and sociology to these problems have scarcely begun. They should prove even more revolutionary

than those of biology, physiology, and medicine. The question arises, however, whether this progressive naturalistic view leaves any basis for the religious attitudes.

Religion a Necessity for Man. We have seen that religion has two aspects, the objective and the subjective. In its objective aspects religion is a way of controlling, or influencing, the occult powers behind phenomena. The progress of science, however, brings these occult powers into the open, and sets them to work under realistic and effective control in the satisfaction of human wants. Subjectively, religion, in so far as it is psychologically constructive, produces a sense of confidence and power. Many people derive comfort from a belief in an All-Father, on whom they can rely in times of ill-luck, such as sickness, distress, and death. In view of the numerous exigencies of life, it is not marvelous that there is great vitality, even in an age of science, in belief in a Providence God, who will comfort those in distress, befriend the friendless, and reward the virtuous. Were such a belief not furnished by tradition, man's rationalizing tendency would create one, just as it has created and hugged dearly countless other illusions. Certain it is that most of the divinities who satisfied these longings in ages past were wholly fictitious, as are many now thus functioning; but their psychic value, together with their countervailing evil, remains. It will not be possible so to organize social life as to eliminate all life's contingencies, so that the need of psychic support will be permanently necessary for most people, at least some of the time. Modern psychology, however, points to the possibility of securing these subjective values through the psychic adjustment of the individual to his social group.

The Permanent Psycho-Social Element in Religion. It is eminently worth while to note that most of these subjective needs, and the accompanying experiences, have sociological as well as psychological aspects. We have repeatedly noted that every group has its own gods and determines for itself the scope of the sacred. There is always such an intimate relationship between a social group and the sacred that the group welfare is identified with what is held to be sacred. Devotion to the sacred is, therefore, devotion to what is believed to represent the highest welfare of the group itself. It follows that the religious attitudes and experiences can be explained in terms of the psychic relations

of the individual to the social group with which he most intimately allies himself.

The basis of this identity is to be found in man's gregarious nature. To him the most disturbing experience is psychic isolation from a social group. Social condemnation results in extreme humiliation, loss of confidence, and a sense of unworthiness. Such a state produces those smartings of conscience which the revivalist calls "the conviction of sin," or the voice of God. There is no way to restore mental peace and confidence in such a case except through the reestablishment of psychic unity with a sympathetic social group. Characteristically, in religious communities this is done by repentance, penance, sacrifice, and manifestation of contrition, often by the shedding of tears. On a more dignified plane it is done by apology and restitution. There follows a restoration of self-respect, peace, and happiness, even a sense of renewed courage and power. There is a revived feeling of loyalty and greater willingness to undergo self-denial and self-sacrifice for those who have received us again into unqualified fellowship.

These phenomena are, however, purely psycho-social and not at all mystical in origin and nature. They are not infrequently manifested within the family. They are found in the attitudes of college men and women towards their college, fraternity, sorority, or friendship group. What men desire is moral support, and this is derived from the close psychic sympathy of others. Even the force of that religious faith which always justifies itself is derived from the union of believers in a mutual fellowship. It is not surprising to discover that the criminal has exactly the same experiences. He derives immense moral support from his gang. With it about him he feels strong and courageous; he defies danger and the police; he swells with pride and a sense of power when praised by them; he suffers from smittings of conscience when disloyal to them and subjected to their scorn. The extreme power of such psycho-social pressure is seen in those not infrequent cases where individuals commit suicide rather than face family or friends, following betrayal of confidence and esteem. It is the everlasting merit of the new dynamic psychology, that it has shown clearly that the way to preserve psychic peace and the integrity of the personality is to avoid those mental conflicts due to the disruption of harmony with

one's fellows. The enormous utility of the Catholic confessional, through which multitudes have found "the peace that passeth understanding," is due to the opportunity to unburden the mind, or to place one's psychic burdens on One who would hear sympathetically and forgive. The psychoanalysts have shown that confiding in a strong and sympathetic friend has an equal effect.

Such a view makes clear the fact that there are more religious and less religious persons. In an earlier chapter we cited Galton's illustration of the variation in gregariousness among the wild Demara cattle. While most of them grazed in a fairly compact herd, certain of the stronger spirited, more self-reliant bullocks wandered more or less apart. The analogy with social grouping is striking. Whereas the vast majority of men keep close to the herd in which they find comfortable familiarity and, therefore, mental poise and self-confidence, the stronger individualists lead lives of more independence and freedom. They have less of the feeling of dependence on group support; they often flout the sacred conventions of their society and are looked upon by the average man as dangerous sources of evil contagion and as sure candidates for eternal damnation. We see here also what truth there is behind the oft reiterated statement that there is in man a deep "religious instinct." That truth seems to be that man is social to the roots of his being and is a lost and miserable sheep apart from his herd. Moreover, this point of view reveals the true basis of distinction between religious and non-religious situations. The intensely religious situation is one which combines danger and crowd suggestion. On such occasions, the average person, like the lost sheep on its return to the flock, rushes pell-mell into the bosom of the herd in order to feel all about him the comforting sensation of a protective presence.

The full significance of such facts is as yet by no means clear, but they do point to two very profound conclusions. The first is that, on account of his gregarious nature, man is deeply dependent on his social group for psychic peace. This is the primary fact in religious psychology. Without a consciousness of harmony with those confrères with whom he has closely allied himself, he feels a sense of incompleteness and weakness. What many call a "fullness of life" is derived from membership in a group

which tradition and experience have taught us to cherish, and consciousness of the warm esteem of such a group. These feeling attitudes are permanent and ineradicable elements in human nature, though the exact conditions which arouse them change from culture to culture. They do not perish with the cessation of *religious* belief, for they are not dependent thereon. Religion is only one of the avenues for their manifestation.

The second conclusion is that there are many groups and institutions capable of eliciting the attitudes of loyalty and self-abnegation, and of satisfying the egoistic craving for a sense of moral worthiness, which are the primary traits of the religious devotee. A wide survey of socio-religious phenomena shows that men cherish whatever their social tradition has taught them represent the highest social values. To-day, as through all history, the supreme value is the social group itself. For primitive man this was the tribe; for most people to-day it is the nation. Professor Émile Durkheim⁶⁶ sought to establish an identity between the social group itself and the totem (sacred plant or animal) which constitutes its chief divinity. That is, he made the totem merely the symbol of the group, so that the individual in paying deference to the totem was in reality paying deference to the overwhelming and irresistible power of the group itself. Just as the flag is our symbol of group might, dignity, and worth, and just as, in rendering obedience and loyalty to it, we express our fear, respect, and love for our country, so the primitive respect for the totem was looked upon by Durkheim as a recognition of group ascendancy. He attempted to make this the root of all religious ideas and practices, but he was not successful in this because totemism is far less general than the belief in spiritual beings.

Nevertheless, he was psychologically correct. It is true, as Durkheim said, that, "In a general way it is unquestionable that a society has all that is necessary to arouse the sensation of the divine in minds, merely by the power that it has over them; for to its members it is what a god is to his worshippers."⁶⁷ It is for these reasons that there is such a striking similarity between patriotism and religion.⁶⁸ Before the separation of church and

⁶⁶ *Op. cit.*, especially Bk. II, Chap. vii.

⁶⁷ *Ibid.*, p. 206.

⁶⁸ Shailer Mathews, *Patriotism and Religion*, The Macmillan Co., 1918, especially Chap. i.

state these two sentiments were largely identical in both form and substance. At that time the symbols of god and tribe, or god and country, were either one and the same, or intermingled. The rituals and ceremonials whereby one expressed devotion to both were much the same. It would then have been impossible to separate the emotions and sentiments of the patriot from those of the religious devotee. Even to-day the average American thinks of God as identified in purpose with the interests of our country; and, if we add to this the social values which this same average citizen thinks essential to the maintenance and perfection of the Republic, we have most of the things he wishes emphasized by his pastor and cherished by his religious community. For these reasons and others given above, times of group crisis witness a spontaneous and simultaneous revival of patriotic emotion and religious fervor.

From the standpoint, therefore, of the psychology of social values, we may say that religious devotion is devotion to those socially created values which one places higher than himself. That for which, if need be, a man is willing to die, constitutes the supreme object of his world of values. Patriotism is the most important aspect of the loyalty complex for many people to-day. Millions would willingly sacrifice themselves on the altar of their country, though few would go so far for theological opinions. The pacifist is not one who has lost the capacity for acts of supreme loyalty, but one who has come to place humanity above nation as an object of devotion. The Socialist is not one who loves his country and its gods less, but one who cherishes the ideal of an illusory utopia, a society built on a somewhat different foundation from the present one. These and many other similar attitudes that might be cited are not religious in the technical and exact definition of terms, but they differ therefrom only in the objects of their attachment. These objects are purely mundane, whereas the objects of religious devotion are believed to be spiritual, though they derive their nature and purposes from the group which cherishes them. All these attitudes are from the standpoint of individual and social psychology essentially identical. Even the religious and moral martyrs of every age, though they have defied the prevailing mores, have done so because of loyalty to other socially created and inherited values. Cultural change produces conflicts of

moral principles, as is seen in the current discussion of nationalism and internationalism, peace and war, science and theology.

Moreover, we find in this approach the explanation of the relative ease of the transition which seems now to be occurring in many quarters from a supernaturally based and highly dogmatic religion to a socially based and relatively undogmatic one. With the progress of scientific thought, religious teaching has become more and more identified with ethical training. As belief in God and immortality necessarily weakened under the skepticism of rational thinking, religious leaders have given to organized Christianity an increasing concern with the social problems of the age. The gospel of individual salvation for a glorious and everlasting hereafter has gradually yielded to a gospel of social uplift for the building of an earthly paradise. The way is thus opened for the church to become the leader in the development and maintenance of a vigorous social morality applicable to the problems of business, politics, and international peace.

If the view taken in this chapter of the psychological and social nature of religion is sound, then religious purpose and idealism constitute important social forces. Just at present, religious belief and emotions are at a low ebb, probably lower than at any time in many centuries. This is doubtless due in the main to the conflicting influences above outlined. In spite of many soft words and hopeful assurances to the contrary, there is an irreconcilable conflict between the modern spirit, which is scientific and practical, and the spirit of orthodox Christianity, which is mystical and otherworldly. The task of working out an accommodation between them is occupying many minds. This can only be done by a resolute and courageous facing of all the facts. Not the least of these is that the ethical rules themselves must rest on the authority of science, rather than tradition. In so far as these rules affect individual health and well-being, their enforcement can be left largely to individual intelligence and desire to live long and well. But in so far as they affect matters requiring some subordination of individual purpose to public welfare, they should have back of them the powerful propulsion of emotional responses deeply imbedded in individual psychology. The problem of determining what these rules shall be is probably not capable of solution in a way satisfactory to all classes in

such a complex community as ours. The Modernist sees the problem, but it may be questioned whether his attempt to combine an attenuated theology with the scientific spirit represents more than a transitory phase of the evolution of modern religious-ethical thought.

Ethical Culture. If religion is to be defined according to its historical meaning (worship of personal spiritual beings believed to guide individual and social destiny), then those forms of Modernism in which the supernatural element is most attenuated constitute religion only by courtesy. They represent, however, the definite trend of current thought. If, then, the still widely held beliefs in a personal God and individual immortality should continue to lose in vitality, the question arises whether this would be subversive of the social order and destructive of anything that is good, true, or beautiful in individual life. There can scarcely be any doubt as to the answer, if the foregoing viewpoint is sound. Nothing that is known to actually exist is lost by the disappearance of such beliefs, except the beliefs themselves. The psycho-social basis for attitudes of good-will, loyalty, devotion to duty, and to what is believed good and right remains. It would doubtless be subversive of social coherency and efficiency not to replace disintegrating beliefs and their associated emotional values by others. We are so much creatures of habit that the ethical training of youth determines for most persons the objects of loyalty and devotion for the remainder of their lives. But the transition to new social values occurs easily and almost imperceptibly from one generation to the next, even without formal ethical instruction. Russian communism is now trying on a vast scale to replace one set of ethical values by another.

Intellectual change alters the objects and symbols of ethical devotion, but does not necessarily weaken the intensity of the emotional factors therein. It is a matter of common observation that the sentiments of loyalty and personal devotion to social values are well-nigh omnipresent even among the sophisticated intelligentsia. They seem to the orthodox to be social renegades merely because the social values to which they are devoted are different from those accepted by the mass. Whereas the orthodox is ready to die for the preservation of his social tradition, the unorthodox is equally ready to die in the cause of his cherished ideals. The standpat republican or democrat is violently devoted to law

and order, even to the extent of violating the Constitution in their supposed preservation. The radical is devoted with equal violence to one or other brand of social reform. The capitalist finds in the established order a realization of the mandates of God and human reason, whereas the Socialist is filled with a burning desire to elevate the power and social status of the workingman. A Bryan will sacrifice his life for the preservation of popular superstitions; a Tyndall or a Huxley would with equal willingness die in the cause of scientific truth. It would thus appear possible to develop, *so far as the psycho-social elements are concerned*, a purely naturalistic religion. This would center popular sentiments and emotional loyalties around principles of social order and of social progress instead of supernatural beings and mystical concepts. It would seek to guarantee both the stability and efficiency of social coöperation and integration, and also to perserve those ideals of toleration and individual liberty which are essential for social change.

We may here bring out a point that should perhaps have been mentioned before, namely, that all moral codes are in practice more or less dualistic. This is notably true of primitive ethics. There is one code for members of the tribe, and another for all others. Among tribesmen, the rules require mutual aid, kindness, justice, truth, and fair dealing. Toward aliens, the rules require, or permit, enmity, hate, injury, falsehood, and deceit. This is a consequence of that basic struggle for existence which has enforced group solidarity and made group strength an essential of life. This same duality appears in the relations of nations during modern times; but we are living in an age when the growth of internationalism is tending to give a degree of universality, both in theory and in practice, to the moral code.

From the point of view just outlined, conscience, which has been mystically interpreted as the voice of God in the individual soul, becomes in the realm of science the "voice of the herd." It is the psychological deposit of social training, repression, and experience. It is seen to be a consequence of man's social nature, his suggestibility, his sensitiveness to social opinion. "Society sets our habits for us and engraves the tablets of the law in what we call our consciences."⁶⁹ Conscientiousness is an essential psychological factor for the organization and control

⁶⁹ Shotwell, *op. cit.*, p. 139.

of individual activities on the basis of whatever scheme of morality the social group values. It is largely a matter of heredity in the double sense that (1) it is a potentiality of man's brain and hence is found everywhere, and (2) it is like intelligence, in that the intensity of its activity varies from individual to individual in the same environment. It is not, therefore, dependent on religious beliefs for its existence, though religious training undoubtedly affects its operation. The social scientist observes that the principles and practices to which the conscience reacts vary from group to group and in the same group from time to time. In all places conscience reacts to the mores. A perfected science of ethics might well cultivate it to a degree never yet achieved.

What we call the moral order is wholly the product of society and its cultural evolution. It is a product of human experience, purified by thought and vitiated by human ignorance and superstition. Moral codes are thus arrived at by purely secular processes. There is no other source for them. This fact is not altered by the assumption of divinities to whom the codes are attributed, for both the codes and the divinities are social products. The social mandate back of the code remains, regardless of theological beliefs. But, if we cast our thought backward, we note that one moral order after another, buttressed by the most vigorous faiths, have failed to save their societies from destruction. What we want to know is how to improve our own moral code so as to add to its validity and its permanency.

There would seem to be only one possibility, and that is by an increase of our knowledge of man as an individual and of society as a coöperating group. Already science has more than doubled the average length of life. Psychology will in the future enable us to construct a truly scientific scheme of education and child training. If, in the distant future, biology should show us how to breed a better race, science will ultimately give man a new self, just as it has in the recent past given him a new heaven and a new earth. The social sciences may be expected to yield up the secrets of social order and progress and thus enable man to perfect his social system. Meanwhile, there need be no fear that, if men cease to believe in God, they will straightway prepare to go to the devil. That is a vulgar notion that discounts too much the joy and the tenacity of life. Men love life first and

immortality second. The moral code based on the mandates of God yields slowly but surely to one based on the mandates of science, but the new morality is doubly strong. It not only makes its own appeal to human reason and the desire to live long and well, but it has back of it the same social sanction which compels conformity everywhere.

SUMMARY

1. Magic and religion are two ways of viewing and reacting to the mystery of nature and life. The large element of chance in human affairs, and even in the processes of nature as viewed by prescientific minds, leads to a firm belief that they are governed by capricious forces.

2. While magic and religion become more or less differentiated in the course of cultural evolution, they are inextricably combined in primitive thought. Together they constitute the magico-religious, or the sacred, realm.

3. The common elements in magic and religion include similarities in belief, emotional attitude, ritual, myth, and the combination of the practice of both by the medicine man.

4. As it becomes differentiated, magic seems to be a belief in the exertion of mystical impersonal force called mana. In its most common forms, it follows either the law of similarity or the law of contagion.

5. Taboo acts like negative magic, in that its observance prevents something dreadful from happening.

6. Magic is, in many respects, a pseudo-science. It differs from science, however, in the accompanying emotional attitude and in its theory of causation.

7. In its differentiated form, religion assumed the existence and activity of conscious personal agents. This is based, apparently, on belief in the existence of a soul in the individual person.

8. This belief in human duality arises logically in the primitive mind from observation of appearances and disappearances in nature, from dream experiences, echoes, reflections, and similar phenomena.

9. It gives rise to ghostology, ancestor worship, and the animistic theory of natural events.

10. Since "the sacred" constitutes the most precious part of the group possessions, and since morality includes the rules of

behavior believed to be essential to group welfare, religious authority and emotional motivation give powerful sanctions to the moral code.

11. During the past century or two the hold of the supernatural world-view on popular thought and feeling has been greatly weakened by the rise of industrialism and urbanism, the doctrines of democratic individualism, the advance of science, and the idea of progressive change. These have resulted in a widespread process of secularization, or the removal of institutions and other agencies of social control from a supernatural to a naturalistic basis.

12. These tendencies seem likely to continue. The conflicts between Fundamentalism and Modernism, in that case, will continue, with increasing success for the latter.

13. It seems doubtful, however, whether Modernism takes full account of the scientific world-view. It seems difficult to reconcile the assumption of a God, having practical utility in human affairs, with the growing consciousness that the universe is self-regulating, or governed throughout by natural cause and effect relations.

14. This scientific view does not, however, alter essentially the basis of morality, nor the human search for what is true, good, and beautiful. What has been considered the realm of the sacred has always been socially determined, and the attitude of the individual toward it has been enforced by group opinion, and by the desire of the individual to be well thought of in his community.

15. It would thus seem possible to develop a morality based on the mandates of scientific knowledge, and enforced both by the individual desire to live well and happily, and by the force of group opinion compelling adherence to what is believed necessary for group prosperity.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. Do you find any magical beliefs among members of your class, or community?
2. How would you account for the persistence of popular superstitions, which are definitely known by the educated public to be such?
3. Give illustrations of luck happenings that suggest the operation of a capricious will.
4. Do you know anyone who has seen a ghost?

5. What evidences for spirit existences do the psychical researchers stress?
6. Give some examples of current fetishes.
7. Does religion necessarily rest on belief in supernatural spiritual beings?
8. Is ancestor worship, as carried on in China, a true religion?
9. What are the Buddhist ideas regarding soul and divinity?
10. Give examples of both primitive and modern taboos.
11. What are the similarities and the differences of patriotism and religion?
12. In what ways does the decline of religious authority affect morality?
13. Is religion a factor in social progress, or in social order only?
14. Is it correct to speak of a "religion of science"?
15. Does it seem probable that ethical culture will replace supernaturalism?

SUGGESTED READINGS

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 MARETT: *Threshold of Religion*, Chap. 5, pp. 122-144.
 MATHEWS: *Patriotism and Religion*, Chap. 1, pp. 1-33.
 RANDALL: *The Making of the Modern Mind*, Chap. 20, pp. 519-554.
 THOMAS: *Source Book for Social Origins*, pp. 651-683.
 TOZZER: *Social Origins and Continuities*, pp. 99-126.

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CHAPTER XIII

MARRIAGE AND THE FAMILY

INTRODUCTION

Importance of the Family. The family is generally considered the most important of all the social institutions. A larger proportion of the lives of individuals centers around the family than around any other social organization. Among primitive peoples the family is frequently the central agency, not merely of racial reproduction, but also of education, economic activities, religious worship and sacrifice, and the enforcement of individual responsibility to standards of social control. Even in advanced civilizations, such as the Chinese, there is a very real sense in which the whole of the social organization is built upon the family institution.¹ We shall see, however, that the functions and relative importance of the family, as well as its form, change from phase to phase of social evolution. With us the family is still the most important of all social agencies; and yet it is clearly less important to-day than it was a generation ago.

Definitions. *Marriage.* Both marriage and the family are social institutions in the sense that they are forms of behavior which are subject to social regulation. Such regulation has to do, however, with their form rather than their essential basis. This basis may be found in the instinctive sexual and parental urges of human nature. We may then define *marriage* as the more or less formal and durable union of one or more men with one or more women in socially approved, and therefore moral, cohabitation. Marriage is thus a standardization of the gratification of the sex impulses. It began with the first rules regarding mating. Such rules must have been made at very early stages of social development, for the lowest savages now known have very elaborate marriage customs. Marriage does not include all the sex relations, but only such as are entered into by formal arrangement and establish marital rights and duties. Such rights and

¹ See D. H. Kulp, *Country Life in South China. The Sociology of Familism*. Teachers College, 1925.

duties vary greatly from society to society. For example, our own marriage rules include restrictions as to age, requirement of license, prohibition of marriage by certain classes of defectives, and prohibition of plural unions.

Marriage rites may be defined as all those ceremonial and ritualistic customs whose repetition gives formality, dignity, and social rightness to the entrance upon the marriage relationship. Some such ceremony is found among all peoples, though it is sometimes extremely simple. Spencer thinks the first ceremony was some such simple act as building a fire together. "Eating out of the same vessel is perhaps the most common wedding rite.² Alongside of marriages entered into by the customary approved ceremonies are others. Some communities, including certain American states, recognize what is called "common law" marriage, which, though recognized as involving legal rights and duties, is entered upon without public rites, but with mutual pledges. Marriage rites usually combine both civil and religious features. Even when primarily religious they contain civil elements, since they involve community sanction. In advanced civilizations there is a tendency for rites to become predominantly civil, or even in some cases, exclusively so.

The *family* is the institution charged with the duty of racial perpetuation. It includes, besides the individuals united in wedlock, their offspring and all other relatives who by law or custom are charged with rights or duties toward parents or offspring. We shall see that, in some societies, the family as thus defined is a rather extensive group. Among all peoples the normal expectation is that marriage will lead to the family. The family is the usual but not necessary consequence of marriage, because marriage normally leads to offspring and to all the rights and duties involved in the socially approved forms of parenthood. Marriage without offspring does not constitute a family, in the full sense of the term. The following pages reveal various forms of marriage which are supplements to the individual pair marriage, but which have very little effect on the family. The individual family, in other words, exists in many parts of the world alongside and in perfect harmony with plural marriage. It is a general rule in fact among both primitive and modern peoples that, in the ab-

² A. M. Tozzer, *Social Origins and Social Continuities*, The Macmillan Co., 1925, p. 155.

sence of offspring, a marriage contract is more easily dissolved than where offspring have appeared. There is thus a general recognition by law and custom of an important social difference between a childless marriage, and a marriage which has resulted in the establishment of a family. In our own society there are many more marriages than families. Among western nations the proportion of childless unions ranges from 10 per cent to 18 per cent of all marriages.³ Such marriages are doubtless often very satisfactory to the individuals involved, though not infrequently the lack of offspring is a disappointment to one or both parties. Childless marriages are definitely on the increase, a phenomenon due to profound social causes which are affecting the family as well as marriage.

It thus appears that marriage is a regulation of sexual behavior, and the family the regulation of parental, and also of filial, behavior. Parental, as well as sexual, behavior has its instinctive basis. Mothers are undoubtedly endowed with a strong instinctive tendency to feed and care for their offspring. Such tendency is apparently not fully aroused until after the birth of a child. It is not, therefore, likely to manifest itself in full vigor until after motherhood. We seem warranted also in attributing to male man an instinctive tendency to remain with the mother after childbirth, and to serve as protector and supporter. Not all students of these matters are willing to grant the male any such instinctive urge. It is difficult, however, to account either for his behavior or the preservation of the species, in the absence of an innate tendency on his part to remain with the mother. To be sure, he might have remained with her from force of habits built on sexual and other bodily and gregarious satisfactions derived from association with her. All these, however, he could have found in another mate. In any case, the parental instinctive urge is obviously less strong in the male than in the female. The family thus rests on the combined effects of sexual and parental behavior. Such behavior has roots deep down in the animal world. Natural love, natural marriage, natural parenthood, and the natural family all exist below the human level. On this latter level, however, as a consequence of man's tendency to reflect upon and to regulate all relations of significance for the

³ Edward Reynolds and Donald Macomber, *Fertility and Sterility in Human Marriages*, W. B. Saunders Co., 1924, Chap. ii.

welfare of the social group, both marriage and the family become institutions.

The Functions of the Family. The primary function of the family is to serve as *the racially reproducing unit*. All other functions are purely incidental to or secondary to this biological necessity. Moreover, no form of the family in which this essential purpose is not fulfilled can be said to be entirely successful from the social viewpoint. In order to carry out this purpose, the family serves as the agency whereby such regularity and permanency is given to the relations of parents and offspring as will guarantee the birth and survival of a sufficient number of offspring to maintain the race. The family thus *serves to standardize and regularize the sex relations*, though it is at no time and place the exclusive agent for their manifestation.

In carrying out its function of procreating and rearing offspring, the family also serves among most people as *the primary economic unit* in social organization. By this is meant that among most peoples the economic activities of both husband and wife center around their family organization. There is no exception to this rule among any known people. Consequently, the family is deeply affected by economic conditions. The prevailing forms of property and ways of making a living react on the form of family, the rights and duties of members, and the division of labor and responsibilities within the family. In some simple and primitive agricultural societies where the women own and till the land, the prerogatives of the mothers are very great while the fathers may be loosely attached and enjoy little authority over their wives and children; under different economic conditions, with the ownership of the principal means of subsistence vested in the fathers, the position of wives may become servile, though the family as a whole becomes highly integrated. In our own day, we are experiencing very profound changes in the family as a social institution in consequence of the development of the capitalist system of industry. This system has enormously enlarged the scope of feminine activities and liberties, at the same time that it has taken away from the household a great number of its former duties.

It is still true, however, that the economic activities of most adult men and women center about the family. There is no substitute for such an arrangement, except some form of com-

munism whereby children would be reared by public agencies set up by the community at large. Our tradition holds that parents should be made responsible for the care and up-bringing of their own offspring. If such parental responsibility is to be clearly enforced, then the family will continue to constitute the nucleus of parental economic effort. It would be almost impossible to exaggerate the importance of this economic motivation in the lives of most people round about us. The desire to marry is a powerful factor in giving purpose and determination to young men. Once they are married, the desire for financial security for their families becomes a steady, constant stimulus to ambition and effort.

In the same manner, we may say that the family is among most peoples *the primary institution for the education of children* in the folklore, moral and religious traditions, economic technique, and other manners, customs, and sentiments of the social group. Among all primitive peoples, nearly the whole of the educational activities are thus carried on by the family. Even in a highly advanced society such as our own, in which an enormous amount of attention is given to public education, the family still serves a highly important function in the development of personality, moral and religious attitudes, social sentiments, and many of the distinctive features of individual refinement. Because of its central position in the lives of individuals and in the social organization as a whole, the family has often played an important rôle in political activities, and it is everywhere the principal agency for the promotion of the activities of polite society.

The relative importance of the economic, educational, moral, and religious functions of the family change greatly from society to society, and particularly with the advance from primitive, loosely organized societies to those having a more complex culture and a more highly integrated structure. Thus, in America today, as compared with the America of our Revolutionary Fathers, these particular functions of the family are of much less importance. The state and other social organizations have taken over the educational, moral, and religious functions to a very large extent. Public schools are omnipresent, and attendance on them compulsory. Daily Bible reading with prayer, as a family ceremonial, has been discontinued as a general custom. The development of the modern factory system has tended more and more to strip the family of its ancient economic activities and to make the

individual rather than the family the unit of primary economic concern. Individuals are consequently drawn out of the family in increasing numbers for the winning of sustenance, a movement which is exerting a revolutionary effect on the familial organization and the social status of women.

FORMS OF MARITAL RELATIONS

Definitions. In the foregoing discussion we have made a distinction between marriage and the family. The reason for this should be clear. "The exact form of the family will depend on the nature of marriage."⁴ Monogamous marriage and the single pair family go together. If plurality of mates is allowed, then the family institution becomes quite different in important respects. There are four fundamental forms of the marital relation: (a) promiscuity; (b) polyandry; (c) polygyny; and (d) monogamy. These may be respectively and strictly defined as: (a) a group of men and women in which each and every man is the equal and undifferentiated husband of each and every woman, regardless of their blood relationships; (b) the marriage of two or more men to one woman; (c) the marriage of two or more women to one man; and (d) the marriage of one man to one woman. There is probably no group in which one single form is universal, though there is a tendency for one form to be the general rule in a given society, as monogamy with us. Several forms may exist side by side, as polyandry among the lower classes (or as prostitution among Europeans), monogamy as the nearly universal and most approved form, and polygyny among the aristocracy.

Promiscuity. The evolutionary ethnologists inclined strongly to the view that the very earliest form of marital relations was that of the promiscuous group living in a state of sexual communism. Herbert Spencer held that all social relations and institutions evolve from the indefinite and incoherent to the definite and coherent. He advanced the theory, therefore, that marital relations had evolved from promiscuity, first through polyandry and then through polygyny, to monogamy. It may be said at once that promiscuity as above defined never occurs as a general custom and it is extremely doubtful whether it ever did. Man's nearest anthropoid relatives do not, on the available evidence, practice it. Among all groups of men, even the lowest savages,

⁴ W. H. R. Rivers, *Social Organization*, A. A. Knopf, 1924, p. 12.

incestuous relations are prohibited under severe penalties. There are, therefore, no known savages living in a state of promiscuity.

There is, however, a considerable variety of marriage arrangements which provide for plurality of mates. These sometimes are grafted on to the individualized marriage relation; they are sometimes in the form of the marriage of a group of men to a group of women, each the spouse of all the opposite sex indifferently. These customs are often cited as indications that there was an earlier state of sex promiscuity or group communism. We may note a few examples.

There are, especially among the Australians, Melanesians, and Polynesians, various forms of legitimate multiple unions. Among the Dieri of Australia two forms of marital relations are established, known as *tippa-malku* and *pirrauru*. The former constitutes the main and regular marriage relation, while the latter establishes supplementary relations. A woman may have only one *tippa-malku* husband, though a man may have several *tippa-malku* wives. At the same time both may have one or more *pirrauru* mates, to whom union is legalized by a ceremony performed by the head of the clan or totem. "Whilst the *tippa-malku* husband and wife form a real household, it is only in his absence that she lives with any of her *pirraurus*, enjoying his protection.⁵ Thus the *pirrauru* relationship would seem to be engrafted on the monogamous family. This case is typical of many multiple-marriage customs, for there is the substratum of the individualized marriage giving each husband a special claim upon a particular wife, and *vice versa*, but such claim is not exclusive. The supplementary relationships are formed, as a nearly universal rule, after marriage and have little effect on the economic and other functions of the individual family.

Another type of custom often cited is that found among the Chukchee of Siberia. A group of husbands enter into a "marriage union" which may include as many as ten couples, and is characterized by occasional wife-sharing. The members of the "union" are called "companions in wives"; they nearly always live in different camps; they are never brothers, but are always close friends, and usually blood relatives. These associations are based on a desire for variety, the need of protection in the husband's

⁵ Edward Westermarck, *The History of Human Marriage*, The Macmillan Co., 5th ed., 3 vols., 1921, Vol. I, p. 27.

absence, the desire for mates when absent on hunting or trading trips, and the sense of companionship and security resulting from membership in a clique. But this arrangement appears to have no measurable effect on the family. The rights thus conferred are exercised occasionally rather than frequently. The family always consists of husband, wife or wives, and children occupying their own house and carrying out their individual responsibilities. Very similar customs are found among the Eskimo and the Herero of southwest Africa. The similar but simpler custom of wife-lending, as a mark of deference and hospitality, is rather widespread.

Group marriage not infrequently attends polyandry. In both Tibet and among the Todas, several men, usually brothers, not infrequently share two or more women, usually sisters. "If there be four or five brothers and one of them gets married, his wife claims all the other brothers as husbands, as they successively attain manhood; or, if the wife has one or more younger sisters, they in turn, on attaining a marriageable age, become the wives of their sister's husband or husbands."⁶

Some other customs frequently cited in this connection are: the frequent indifference regarding prenuptial chastity and prepubertal intercourse, the *jus prima noctis*, the extensive custom of religious prostitution, sexual orgies attending tribal feasts and celebrations, the levirate and sororate, later described, and other departures from strict monogamy. In addition, Professor Rivers⁷ argues that human psychology presents no insuperable impediment to promiscuity, a view quite contrary to that of Darwin and Westermarck, who emphasize the importance of male jealousy. While there are polyandrous groups in which male jealousy is not manifest (though it may be under strict control due to social convention), it is a well-nigh universal and often violent trait. Some account would have to be taken also of female jealousy.⁸

After a careful survey of all the evidence, both Westermarck and Lowie conclude that there is little ground for supposing that a general state of promiscuity has existed at any time in human history. All the above and similar instances of more or less promiscuous relations may be viewed as modifications of and supple-

⁶ *Ibid.*, Vol. III, p. 224.

⁷ W. H. R. Rivers, *Social Organization*, A. A. Knopf, 1924.

⁸ See Robert H. Lowie, *Primitive Society*, Boni and Liveright, 1920, p. 53, and Westermarck, *op. cit.*, Vol. III, pp. 86-94.

ments to an underlying monogamy. They may be explained by one or more of the following reasons: the desire for sexual variety, mutual protection, economic advantage, and the historical conditions affecting the groups practicing them. Although there is among many peoples great moral laxity as compared with our own standards, there is no society in which general sex freedom prevails. It does not seem probable that any ever existed. Even where some form of group marriage is found, it is always true that mates must belong to certain categories in the population, and that individuals are required by opinion and even severe penalty to adhere strictly to the approved relationships. In all cases where plurality of mates is permitted, whether before or after marriage, the groups are carefully defined, and rights and duties strictly prescribed. Lowie concludes that, "hitherto no evidence has been adduced to show that any people in the world have in recent times practiced sexual communism in a manner destructive of the individual family."⁹

Polyandry. This is found among certain Eskmo tribes, among the agricultural but not among the pastoral Tibetans, among the Todas of Southern India, the Nayars (Nairs) of Malabar, and a few other people. It has two forms, the fraternal in which the husbands are brothers, and the non-fraternal in which they are not. Among the Nayars, a military caste originally, it seems to be close to a system of concubinage, a woman serving as the mistress of several men. Among them the paternal responsibilities are neglected.¹⁰ Elsewhere it is rather obviously a modification of monogamy. Thus, in the fraternal type, it is customary for the younger brothers to share the eldest brother's wife. But as a rule, they enjoy this relation only after ceremonial permission and continue to occupy a secondary position in the family group. Such a group lives together without serious manifestations of jealousy. In the non-fraternal type, the husbands may live in different villages so the wife visits them in turn, usually a month at a time; or, indeed, the wife may remain in her mother's household and be visited in turn by her husbands. It is the rule that the fatherhood of the first child born is assigned to the eldest brother, or the oldest husband. Not infrequently as among the

⁹ *Op. cit.*, p. 55.

¹⁰ Westermarck, *op. cit.*, Vol. I, pp. 184-187, and Vol. III, pp. 133-141 and 198-206.

Todas of India, fatherhood is established by a special ceremony, the husband performing it having claim to all the children born until another husband performs the rite.

Polyandry seems not to be due to a single set of causes. In most cases it is associated with an unusual disproportion between the sexes. Such excess of males, moreover, is sometimes due in part to female infanticide, a custom believed to have been nearly universal at some time or other.¹¹ This custom aimed to restrict numbers, and may have had its origin in tribal crises, even among peoples not now living under trying conditions. Among the Todas, who have reduced female infanticide in consequence of contact with other cultures, polyandry has tended toward a form of group marriage, the husbands taking two or more wives instead of a single one. Among the Tibetans, who do not practice infanticide, polyandry is of fraternal type and seems to be due to a desire to retain the inheritance of property, especially land, in a particular male line. There seems little doubt that the primary causes of polyandry are poverty and a scarcity of women. In some respects prostitution among advanced civilizations bears a faint resemblance to polyandry.

Polygyny. The custom of taking more than one wife is much more widespread than that of polyandry. It may be associated with social conditions such as hunting or warfare, which unduly reduce the number of males, or with the distribution of wealth which makes it possible for certain classes to practice it, other classes practicing some other form of marriage. Thus, among certain Eskimo tribes, where the dangers of the chase decimate the males, it not infrequently happens that a few men will have two wives, although monogamy is otherwise the universal rule. In some cases, a surplus of women may result from war and conquest in which the enemy males were slain and their wives taken in concubinage. While one factor in its maintenance is undoubtedly (1) the desire of the male for sex variety and indulgence, it may also be accounted for in part by (2) the desire for offspring due to religious beliefs and social attitudes, by (3) the desire for social prestige, and even by (4) its economic advantages. The greater the number of wives, the greater the number of workers. Polygyny is not to be interpreted as always an indication of fe-

¹¹ A. M. Carr-Saunders, *The Population Problem*, Clarendon Press, 1922, pp. 145 et seq.

male inferiority and degradation, for it sometimes happens that wives prefer it, because of the reduction in their labors which it makes possible. The wives, especially the first, who often occupies a position of some preëminence, may desire it because of the leisure and social prestige which accompany it.

While the above may be advanced as reasons for the existence of polygyny, the actual historical causes for it are complex and vary from place to place. Westermarck finds that this form of marriage exists in only a third of those areas where there is an excess of women. It would seem that another essential is the accumulation of wealth. This may, and often does, result in class distinctions, and thereafter one of the marks of class superiority would be a plurality of wives. It may thus result that the poorer males will be driven to polyandry through the scarcity of women resulting from upper class polygyny. At the same time polygyny exists among some nomadic tribes where class distinctions do not exist or are unimportant. Polygyny has been a common practice among the upper classes of the nomadic warrior peoples who have played an important part in the great civilizations. It has a certain biological advantage in giving a plurality of mates to the superior males. In the form of concubinage it has usually accompanied advanced civilizations. In our own culture it long remained as a prerogative of aristocracy. In our society it occurs only occasionally, usually in urban communities and in clandestine form.

Monogamy. The foregoing discussion reveals various reasons for supposing that the earliest form of human marriage was that of temporary monogamy. It may also be said that monogamy is almost everywhere the most frequent form of marriage, even where other forms are found. This does not mean that the extremely strict monogamous family with which we are familiar is nearly universal, but rather that some variation of the monogamous relationship, with greater or less provision for sexual variety, is found among practically all peoples everywhere. This form is often enforced by economic considerations, a man not being able to afford a second wife. In the classical or Greco-Roman culture, of which ours is a continuation, monogamy was always the most approved form of marital relations. The strictness of its enforcement, however, has varied greatly from period to period. Traditionally, the Greco-Roman family was one of strong male domination. Its prototype, indeed, is found in the

patriarchal family of the Hebrews, Babylonians, and other ancient peoples, among whom it was often associated with polygyny. It is a family marked by great stability, by certainty of fatherhood, and by a strong sense of rights to property and title. In fact, it seems highly probable that one of the important reasons for its increasing prevalence has been a desire to clarify, or make more certain, parental relationships and to narrow the range of property inheritance. It is a form of family which favors social stability, not only because it makes blood relationships definite, but also because it centralizes authority and responsibility. It is more highly integrated than either the polyandrous or polygynous family, and other things being equal, would favor the survival of the groups practicing it. In the ceaseless selection among social groups and institutions, that form of marriage which most clearly centers parental responsibility and most effectively coördinates the efforts of fathers and mothers in the rearing of offspring would constitute a source of social strength and vigor. Monogamy also makes marriage possible for all normal persons, provided there is an approximate equality in the numbers of the sexes.

The monogamous family reached its most highly integrated form in what Professor Giddings¹² has called the *religious proprietary family*, one in which property ownership and much religious authority centered in the father. While often diluted by concubinage, this patriarchal type, with its complete concentration of authority in the father and its related tendencies toward ancestor worship, has been found among the Hebrews, the Greeks, the Romans, the Chinese, the Japanese, and in western Europe. Under it the father held a power of life and death over all other members. A son was always desired in order to carry forward the family name and title, to inherit and manage the family property, and to pour libations on the graves of departed ancestors. Filial piety and loyalty were among the highest virtues and essential for the peace, solidarity, and efficiency of the whole social fabric. Under it women usually occupied a position of distinct social and domestic inferiority. Adultery by a wife was not merely an affront to the husband's pride and a serious violation of his property rights, but an unforgivable offense against religious mandates. It was thus both a crime and a sin. Barrenness was a dreadful misfor-

¹² F. H. Giddings, *The Principles of Sociology*, The Macmillan Co., 1904, pp. 290 *et seq.*

tune because it threatened the family name, property, and household gods. Women were regarded as inferior, not merely physically and intellectually, but from the standpoint of social worth. It was even questioned whether they had souls or were capable of moral insight. They were regarded as not merely needing protection, but as being suitable objects for a permanent tutelage. Girls were married without their consent, according to the interests of the father. In some cases such marriages were accompanied by some variation of the bride price system, while in others they were accompanied by its opposite, the dowry system.

This patriarchal family has existed in a more or less attenuated form among western nations since the rise of Christianity, and even this mild form is being gradually transformed by the rising status of woman. Two major factors have contributed to this transformation, namely, the evolution of romantic love and the rise of the capitalist system. During the feudal period with the flowering of knighthood, there gradually developed an idealization of woman and an increasing emphasis on the importance of romantic love as the basis of sexual relations. This tended to eliminate the system whereby marriages were arranged by parents on the basis of economic or social considerations and to give increasing universality to the freedom of young people to find mates on the basis of mutual attraction. While this latter system has introduced an element of risk and increased the instability of the modern family, it has also, doubtless, laid the basis for a general increase in the happiness of marital relations and an elevation in the tone of family life. The rise of the factory system, with its consequent freeing of women from a position of complete economic dependency upon the family circle, has enabled women to lay claim to an equality of rights in both love-making and in domestic relationships.

As we note in later paragraphs, numerous forces are operating to bring about a further disintegration of the family. When Spencer wrote his *Sociology* a generation or so ago, he thought that he foresaw the emergence of the permanently monogamous marriage based on mutual affection. He thought property and other social considerations would lose all importance as factors leading to marital unions; that children, though fewer in number, would become more powerful ancillary bonds between parents; that violations of the monogamous state would become less fre-

quent; that divorce would become easier but, after a time, less usual. He looked for a progressive refinement of sentiments, so that legal bonds would become relatively unimportant and bonds of affection all important. No doubt we have made some advances in these directions, but prophecy as to the social future is beset with immense difficulties. Just now our domestic institutions are in a state of considerable upheaval. It would seem that the monogamous family must remain, however, as the dominant mode, as the core of whatever readjustments the future may divulge.

Residence. The place of residence of husband and wife must be taken into account in considering the forms of marriage and the family. There are three possibilities. The young couple may live in the household of the parents of either the bride or the bridegroom, or they may set up a separate establishment. If the bride remains in her own household, residence is said to be *matrilocal*. If the husband takes her to his parental domicile, it is *patrilocal*. There are thus a great variety of possibilities, and all of them seem to be in vogue here or there. The polygynous husband may bring his wives to his paternal house; they may remain each in her mother's house; he may establish an independent household for them; or he may maintain a separate house for each. Polyandry shows somewhat similar variations, the most unique form being that in which the wife visits the husbands in turn in their parental households.

Descent. Of like importance is the method of tracing descent. When this is traced through the mother, it is called *matrilineal*; when through the father, *patrilineal*. The former is also referred to as *mother-right*, and the latter as *father-right*.

It is generally true that matrilineal descent and matrilocal residence are found together, as are also patrilineal descent and patrilocal residence. There are, however, numerous cases of matrilocal residence accompanied by patrilineal descent. A trait frequently associated with matrilocal residence and matrilineal descent is the *avunculate*. That is, the mother's brother exercises an unusual authority over her children, especially over her sons. In some such cases the husband does not live in the household, but is merely a temporary guest there. He may not be responsible for the support of his own children, but will contribute his labors to the support of his sister and her children, and exercise avuncu-

lar authority over the latter. This arrangement is most common among tribes living in a state of primitive agriculture, in which the land is owned by the women and tilled by the mother and her daughters. It is the nearly universal rule that the father is looked upon as the master of the household, *if he resides therein*, whether the descent be traced through him or through the mother. This is true even when matrilocal residence is accompanied by matrilineal descent.

METHODS OF SECURING MATES

The Various Methods. There are a number of methods of obtaining mates widely practiced by primitive peoples. Sometimes several methods are found even in the same tribe. Among the Crow Indians a wife might be secured by purchase, by inheritance of a brother's widow, by exchange, or by capture from a neighboring tribe. There were also love alliances.¹³

Capture. It was formerly thought that marriage by capture was a well-nigh universal custom. It was argued that a bride taken by force would have the advantages of giving the captor exclusive possession and of raising his social esteem. In addition, it was contended that this esteem would actuate other men of the tribe to seek brides as trophies, so that in time custom would require a man to secure a wife from another group. In this way was explained the universal rule of exogamy, or the requirement that one marry outside a restricted kinship group. Moreover, Spencer thought wife capture was gradually superseded by wife purchase.

These views are no longer accepted. No people has been found relying exclusively or even primarily on genuine wife-capture, though the custom exists as a more or less extensive practice in various areas. It has frequently been pointed out that capture could not become a general custom, for a strong tribe would then be able to prevent a weaker neighbor from having any women. This would destroy the source of captives. But there is a host of customs among savage and civilized peoples which are often explained as relics of a former practice of wife capture. The bridegroom and his friends are required to overcome the resistance, real or feigned, of the bride's relatives, or to undergo a drubbing, or to simulate attack and capture, and so on. Doubtless

¹³ Lowie, *op. cit.*, pp. 17 *et seq.*

some of these customs are survivals from an earlier day of actual capture; some of them are designed to test the courage, adroitness, and seriousness of purpose of the bridegroom; some of them are merely evidences of a sense of loss on the part of the relatives; others may express in exaggerated form the natural coyness of the female, who is obliged by custom not to give herself up except as a result of forceful mastery; not improbably a closely related motive is that capture should serve as a symbol of appropriation by the bridegroom and subjection of the bride.

Stealing. Alongside wife capture is also the possibility of wife stealing. Whereas wife capture occurs between different groups, wife stealing may occur within a given group. It is usually a civil offense and involves the thief in certain pecuniary or other penalties.

Purchase. Perhaps the most general of all ways of securing a wife is that of purchase. This is practiced by many tribes in Africa, Asia, and the Americas. While, in general, it gives the husband exclusive possession of the wife, this is by no means universal. Nor is it always true that the wife thus becomes a piece of property wholly subordinated to the husband economically and socially. There is an enormous range of variability of social practice associated with wife purchase. In general it seems clear, however, that the purchase is a civil contract between the husband, or his family, and the family of the bride. It is understood that the bride will live according to the social conventions required among her people and that she will bear children. If she should elope with another man, or should prove sterile, her family must either supply the disappointed purchaser husband with another mate, or return the bride price.

A custom closely allied to wife purchase is the acquisition of a wife by exchange of sisters. A young man wishing to marry, and having a sister approaching marriageable age, hunts up another young man of suitable social category also possessed of an unmarried sister. They, or preferably their parents, arrange an exchange. This obviates the necessity of a bride price, and since marriage is a group contract between the two involved families, all the customary obligations are readily carried out. Such exchange is, as a rule, associated with cross-cousin marriage, that is, marriage between first cousins who are children of a brother and sister.

Closely related to the custom of wife purchase is that whereby

a wife is secured by performance. The young man associates himself with the bride's family for a longer or shorter period of time, performing certain labors and is rewarded with a daughter of the family for a wife. Readers of the Old Testament are familiar with this custom; Jacob thus acquired Rachel.

Levirate and Sororate. In addition to the love alliances and wife lending whereby matings of a temporary sort are formed, there are found among many peoples the customs known as the *levirate* and the *sororate*. By the former a man inherits the wife, or wives, of a deceased brother. Where such inheritance goes to a younger brother it is known as the junior levirate. According to the sororate institution a man, through the purchase of an elder sister, acquires prior right to take in marriage her younger sisters as they arrive at marriageable age. He may surrender such right freely or for a price, preferably to a younger brother. These customs, especially the former, are world-wide, though not universal. Moreover, the social implications differ considerably. In some cases the brother is *obliged* to take his brother's widow and her children and provide protection for them; in other cases he is looked upon as having a *special right* to her; while in still other cases, *she* has the privilege of choosing among her husband's brothers or other kinsmen whom she pleases as a future spouse. The associated social customs indicate that the levirate is closely connected with ideas of property and its inheritance. It is also one of the clearest indications that marriage among primitive peoples is a contract not between husband and wife merely, but rather between the two families. This is almost universally the case where a wife is acquired by purchase or by performance. Thus in cases where there are several widows, they are likely to be parcelled out among the husband's brothers and other male kinsmen in much the same manner as his other property. Or, where a man marries an elder sister and she fails to bear children, her family are expected to furnish him with a sister as a second spouse without further price, a custom which represents the mildest form of the sororate.

Feminine Initiative. It is generally assumed that the sexual impulses in the male are stronger than in the female. They are in him more highly centralized and more poignant. Consequently, he usually plays a more aggressive part in courtship and marriage relations. This situation is so characteristic of the mammalian

world that one may suppose it to be related to survival power in some way. It makes possible the fecundation of the female, even against her will. At the same time it is clear that the sexual urge is strong in both sexes. It, therefore, results in some societies that women are in a position to take the lead in the choice of mates. It is even the duty in some cases for the girls to make the proposals, such action by a boy being extremely bad form. The freedom of women in making advances is greatly enhanced under the system of matrilineal descent and matrilocal residence. Girls signify their choice at dances or festive occasions, as a rule. They may do so by sending a conventional present; or by means of a go-between, who is usually her father or other relative. Girls may even take the initiative in some cases where wife purchase prevails. Where they may not take the lead, they often have a considerable power of acceptance or rejection of a suitor. In a few extreme cases, notably in certain upper castes in India, there is outright purchase of husbands.¹⁴

EARLIEST FORMS OF MARRIAGE AND FAMILY

Different Theories. An enormous amount of controversy has raged over the question of the earliest forms of marriage and the family. The matter is in the very nature of the case insoluble. All living races of men are very ancient; none of them may reasonably be presumed to practice now the primeval culture traits. The problem is of such interest, and its discussion affords sufficient insight into human institutions generally, as to warrant its brief summary. We may note at the outset that there are four distinct theories as to the earliest forms, namely: (1) the theory of group communism; (2) the theory of single male monopoly of the primal horde; (3) the matriarchal doctrine; and (4) the theory of individual pair marriage.

The Communistic Group. This theory holds that there was originally a form of group marriage, or sexual communism, the males living in common with a number of females. The males served as guardians and supporters, and the females performed the necessary functions of motherhood. Much of the evidence that is usually cited in support of this view has already been touched upon in the discussion of "Promiscuity." It seems advisable, however, to consider one additional argument, namely,

¹⁴ For numerous details, see Westermarck, *op. cit.*, Chaps. xiii and xxiii.

that the classificatory system of relationships is an evidence that men at one time lived in promiscuous communistic groups.

Outline of the Classificatory System. Since primitive societies are based on kinship, the method of grouping relatives is an important clue to the whole scheme of social relations. These methods vary considerably as would be expected, but in one form or another a classificatory system is found in all parts of the world. The classificatory system is distinguished from the descriptive system in that its terms apply to a class or group of persons rather than to individuals. For example, our terms "husband," "wife," "father," and "mother" are descriptive since they designate particular persons, but our term "cousin" is classificatory because it applies to the children, both male and female, of father's brother, father's sister, mother's brother and mother's sister. In the simplest form of classification, now known as the Hawaiian, all relatives are included in the following five generations plan:

Grandfathers and Grandmothers
Fathers and Mothers
Self, Brothers, and Sisters
Sons and Daughters
Grandsons and Granddaughters

In this scheme the same term would be applied to father, father's brother, and mother's brother; or to mother, mother's sister, and father's sister. In other words, one would address his uncles by the same term as his father, and his aunts by the same term as his mother. His cousins would be classed with his brothers and sisters; and his children and those of all persons classed as brothers and sisters would be grouped together under the terms used for son and daughter. Briefly, relatives are grouped in classes by generations. The system is in fact more far-reaching than just indicated, for the term for father, for example, is applied not only to the father, father's brothers, and mother's brothers; but to the father's first and second male cousins. Consequently, the same terms would be applied to all the sons or daughters of all those classed as father, as also to all the sons or daughters of all those classed as mother.

This simple system has many modifications, of which the most common and most important is *a separate term for mother's brother and father's sister*, and for all persons classed with them. This is the scheme in use among the American Indians and is often called

the Dakota system. These and other modifications, such as the use of the same term reciprocally for the relation of uncle and nephew, imply definite social relationships, reciprocal rights and duties, privileges, ownership of property in common, restrictions on conduct, or other social regulation. Thus the distinction of the mother's brother is associated with the avunculate, an especially important relation under matrilineal residence. A boy may be under the special oversight of his mother's brother, may even live with him, marry his daughter, and inherit his property. Similarly, the paternal aunt under patrilineal residence may have special authority over and duties toward her nieces and nephews. Customs of avoidance, whereby it is bad form for certain persons of opposite sex to meet face to face, to be in the house at the same time, or otherwise to show any intimacy, are also regulated by the kinship nomenclature represented in the classificatory system.

This nomenclature is uniformly associated with the moiety or sib system, that is, the division of the tribe into kin-groups tracing descent either through the female or through the male line. Its most common features may be explained, if we assume two exogamous groups, A and B. In this case the men of A get their wives from B, and the men of B get theirs from A. It follows that all the women of a given generation will be *potential* wives of all the men of the same generation in the *other* moiety or sib. If then we represent males by capitals and females by small letters and use subscripts to represent generations, we have the following simple division of the community:

B	A
$A_1 - b_1$	$B_1 - a_1 = \text{Fathers and Mothers}$
$A_2 - b_2$	$B_2 - a_2 = \text{Brothers and Sisters}$
$A_3 - b_3$	$B_3 - a_3 = \text{Sons and Daughters}$

FIG. 66.—In this notation, $A_1 - b_1$ means that the men of the first generation of clan A have found wives among the women of the same generation in clan B. If descent is traced through the female line, the children of $A_1 - b_1$ are B_2 and b_2 , who find their mates among the corresponding generation in clan A. If now the Dakota terminology is used, B_2 and b_2 will designate as "father" all men belonging to class A_1 , that is, their own father, his brothers, and his cousins, and they will designate as "mother" all the women of class b_1 . Likewise for "father's sister," "mother's brother," "brother," "sister," "son," and "daughter."

In such a scheme a man marries by preference his mother's brother's daughter, who is also his father's sister's daughter, that is, his first cousin, who is also his cross cousin. It would be impossible for him to marry a first cousin who is also his parallel cousin, that is, the daughter of his father's brother or mother's sister. She would belong to his sib group, and would be called his "sister." The cross-cousin marriage is shown by the arrows in the following notation, where descent is traced through the female line:



FIG. 67.—A diagrammatic representation of cross-cousin marriage, assuming descent to be matrilineal. When B_2 marries a_2 he marries his mother's brother's daughter who is also his father's sister's daughter.

The institutions known as the sororate and the levirate are also more clearly understood in the light of the classificatory system. When, for example, a man inherits a deceased brother's widow, he espouses a woman who originally belonged to the group of his potential wives. The terms of the classificatory system thus seem for the most part to indicate the kinship status of individuals. Moreover, some of them imply potential rather than actual sex relations, though more extensive sex relations may have existed at one time between potential mates than is now customary.

The Classificatory System and Group Communism. While Morgan, Rivers, and others have found in such systems evidence of a one-time freedom of sex relations among those designated by the same term, Westermarck, Lowie, Tozzer, and others argue with great force that the classes designate groups occupying special social relations to each other, which, however, do not include sexual rights. In all societies there are very strict taboos against the mating of close blood kin, a fact which at once excludes the possibility of marriage between many of those of the same class. When, therefore, an Australian applies the term "wife" not only to his actual wife but to all the women of his group whom he might marry under the tribal rules, he does so to indicate that these women are sharply distinguished from other women, whom he could only marry on pain of ostracism or death.

Another crucial objection to the view that the classificatory

system grew out of group communism is that, while the former is widespread, the latter is sporadic and never excludes the individual family and particularized marriage relations. Finally, may be mentioned the fact that the terms "father" and "mother" are applied in the classificatory system to persons who are definitely known not to have been such. Since motherhood at any rate is always clear, this use of the term "mother" to designate all those women whom the mother herself calls "sister," indicates a vague conventional relationship, rather than actual or potential parenthood. Much the same is true of the term "father," for certain Australian tribes, having the classificatory system, seem not to know that the male plays any part in reproduction. Among such people, all terms of relationship through males could have no reference to consanguinity, but must be based on social convention.

Conclusion. There is doubtless a great deal of evidence from all parts of the world pointing to varied forms of multiple and group marriage. This evidence has served some very distinguished ethnologists for support of the theory that the first form of marital relations was some sort of communism. It is impossible to determine finally whether this is true or not. At the same time it may be said that most, if not all, of these practices may have grown up in the course of social evolution, partly out of a desire for sexual variety and partly out of more practical concerns. They seem for the most part to be supplements to the individualized pair marriage, since there is no existing form of sex communism which obliterates the individual family. Most ethnologists now conclude that group marriage, or any other form of sexual communism, was not the earliest form of marriage. Even Professor Rivers, who inclines to the view that sexual communism was at one time very widespread, though perhaps not universal, considers that it arose as a frequent, but not necessary, accompaniment of the clan system of social organization. In other words, he doubts its existence in the "collection" stage when subsistence was merely gleaned from nature without even the crude aids of primitive hoe culture.¹⁵

Theory of Single Male Monopoly. A very different theory holds that the earliest form of human marriage and family was

¹⁵ *Op. cit.*, p. 80; see in this same work pp. 175 *et seq.*; Tozzer, *op. cit.*, pp. 140-146; and Westermarck, *op. cit.*, Chap. vii.

that of one male with several females and their offspring. This theory rests very largely on the assumption that male jealousy would bring it about in man as in some of the animals, such as horses, cattle, and many others, that the strongest, most capable male would assert a monopolistic right to all the females of his group and would not permit access to them by any of the younger males. Freudian psychology has emphasized this viewpoint, holding that in it is grounded an instinctive hatred of fathers by sons, together with a strong mother attachment.

While this Freudian view is extremely doubtful,¹⁶ there are instances where the old males of a group, on account of the prestige which they enjoy in the traditions and customs of their people, are enabled to take possession of most of the women. This prevents the mating of the young men at normal ages. But this and similar customs can be easily explained as later and special developments of marriage customs due to the particular history of the social groups practicing them, rather than as evidences of a primitive, universal stage of single male monopoly. Nevertheless, there is considerable ground for holding that male jealousy plays an important rôle in marriage customs. It is manifested very widely in the animal world, notably among certain mammals and the great apes. Darwin¹⁷ advanced the opinion that, on this account, earliest man "lived in small communities, each with a single wife, or if powerful with several, whom he jealously guarded against all other men." Westermarck cites abundant evidence that male jealousy is well-nigh universal, and usually results in furious punishment of the violation of sexual rights. Its strength seems to vary among different peoples, for its manifestation is undoubtedly greatly affected by social custom. While generally believed to be extremely rare among polyandrous peoples, its manifestation among such groups is sometimes severely repressed as bad form, or even by punishment.

"Sexual jealousy springs from sexual love." But this latter cannot be separated from self-love. Jealousy is an expression of man's strong egoistic nature. It has been said that, "there is in jealousy more of self-love than of love."¹⁸ Exclusive possession flatters the ego, and this is the most important factor in jealousy

¹⁶ See for criticism B. Malinowski, *Sex and Repression in Savage Society*, Harcourt, Brace and Co., 1927; also pp. 688-689 below.

¹⁷ *The Descent of Man*, Chap. xx.

¹⁸ Quoted by Westermarck, *op. cit.*, Vol. I, p. 301.

whether manifested by male or female. The extent of the manifestation of this trait will be greatly affected, however, by social custom. Westermarck and Darwin were thinking of it in the pre-social stage of human evolution, and there it was doubtless similar to its manifestations in the animal world. But later it was affected by ideas of property right in one's mate, and the social esteem or prestige deriving from local custom. As a rule, it seems quite clear that jealousy would prevent marital arrangements bordering on promiscuity; but it would not necessarily lead to single male dominance of a group. In fact, such an arrangement would lead to continual strife, bloodshed, and hence to social weakness and inefficiency. If it should temporarily arise, we must suppose that it would soon be altered by some compromise which would permit the access of the younger men to some of the women. Thus we find that, where the older males exercise the greatest monopoly, they have found it expedient to give over to the younger men some of the older women, and even to permit them access to the younger ones at intervals. We may very reasonably suppose that there was very little difference between most primitive conditions and those now observable, in which the more powerful males appropriate the more attractive women, but tolerate the more or less exclusive possession of others by their weaker fellows.

The Mother-Right Doctrine. Ever since the publication of a very learned work entitled *Das Mutterrecht* (1861) by Bachofen, the theory that women at one time held both domestic and political rulership has had supporters. In its extreme form, this view holds that there was at first a *matriarchate*, or female headship; in its milder form, it holds that descent was originally traced through the mother, and that in consequence women occupied a position of special prestige and authority in the domestic circle.

There seems to be nearly universal agreement among students of primitive society that there never was a truly matriarchal society, that is, a society in which the positions of command were held by women. There seems to be almost no exception to the rule that men enjoy the authority and leadership in political and military matters. Even where there are queens or high priestesses in tribal headship, their power and authority rest primarily on masculine support. Even where the headship descends through the female line, it is never among primitive peoples held by

women.¹⁹ Among the Iroquois where women enjoyed considerable political privilege, they never were chiefs or sat in the supreme councils.

If, however, we use the term "mother-right" to designate matrilineal descent and associated customs, we find it to have very wide application. The following paragraphs, therefore, discuss *the significance of mother-right*. It was formerly argued that the matrilineal system was necessarily universal, because the fact of paternity was either unknown or uncertain, while the relation of the mother and child was certain. Proof of this theory was found in certain evidences that the lowest savages had the mother-right system while higher ones had that of father-right. Moreover, woman seems everywhere to have been the first cultivator of plants. As was stated in a previous chapter, the necessitous care of offspring required that woman secure a subsistence from a relatively limited territory. Her intimate knowledge of plant life seems to have made her the first cultivator, and in many cases also the owner, of the soil. Man was always the hunter and fisherman; he became the domesticator of animals. It was argued that transition to the patrilineal method of descent resulted in part from the discovery of the fact of paternity, and in part from the acquisition of forms of property, especially herds of domesticated animals, owned by the men. This change in economic basis compelled the wife to dwell apart from her people among the husband's folk, thus lowering her status and giving the husband command of her and her offspring. The strange custom known as the *couvade* was also believed to be connected with this transition from mother- to father-right. By this custom the father at or near the birth of a child went to bed, dieted or fasted, groaned, and received the ministrations customarily bestowed upon women in confinement. This was interpreted as a magical ceremony, whereby the father established his relation to the child and hence his claim upon it.

It seems highly probable that the matrilineal system not uncommonly preceded the patrilineal; also that the transition sometimes took place for the reasons asserted. But this is far from making certain that the matrilineal system was ever universal. There are two basic arguments for the belief in such univer-

¹⁹ Tozzer, *op. cit.*, p. 168; and R. H. Lowie, *Primitive Society*, Boni and Liveright, 1920, pp. 189-191.

salinity, namely, the assumption of original promiscuity, and the assumption that there was a time when the fact of paternity was not known or even suspected. We have seen that the first assumption has little basis.

On the other hand, the second assumption seems thoroughly plausible, but it does not warrant the conclusion that women therefore held a position of special prerogative. Ignorance of paternity must at one time have been universal. There are various people who only dimly perceive the truth, while great numbers of peoples attribute pregnancy to the entrance into the mother of spirits seeking reincarnation. In addition to the nearly universal belief in virgin births, are the numerous beliefs attributing power to increase fertility to various objects, places, or magical rites. That such ignorance still exists is shown by Malinowski's study of the Trobriand Islanders.²⁰ Among them the status of "father" is *sociological* rather than *physiological*, he being the "husband" of his wife, but she is considered to be solely responsible for the birth of offspring. The wife lives in the husband's household in patrilocal residence, and yet the tracing of descent through the mother is the universal rule. Nevertheless, the husband enjoys both exclusive marital rights and considerable authority over the wife and over the children until they approach maturity. The children then come under the authority of the maternal uncles. There is in this case as in many others an interesting combination of maternal and paternal principles. As the same author says elsewhere of these people,²¹ the mother-right "principle governs succession in rank, power and dignities, economic inheritance, the rights to soil and to local citizenship and membership in the totemic clan." It also defines the status of brother and sister, the relations of sexes, private and public, and the economic duties of a man toward his sister's household. But alongside mother-right is "the law of marriage, defining the status of husband and wife, with its patrilocal arrangements, with its limited but clear bestowal of authority on the man and of guardianship over his wife and children in certain specified matters."

In this particular case, mother-right seems to be due to ignorance of paternity; but associated with it is paternal authority,

²⁰ B. Malinowski, *The Father in Primitive Psychology*, W. W. Norton and Co., 1927; for Westermarck's qualified view, see *op. cit.*, Vol. I, pp. 286 *et seq.*

²¹ *Crime and Custom in Savage Society*, Harcourt, Brace and Co., pp. 75-76.

due to social need. But we cannot be at all certain that this represents the most primitive norm. In fact, Hartland ²² agrees with Westermarck ²³ that there seems to be no definite correlation between the certainty of paternity and mother-right. The latter exists both where the former is certain and where it is uncertain. The same is true of father-right, or the tracing of descent through the male line. We have seen that the polyandrous Todas, for example, establish fatherhood by a simple ceremonial rite. Even polygyny is sometimes associated with father-right and sometimes with mother-right, depending on the method of residence and the current economic institutions. As Lowie says, ²⁴ "Biological paternity is one thing, sociological fatherhood another."

At this point we may make brief note of the most recent attempt to establish the theory of an original and universal stage of mother-right. In Briffault's vigorous work, ²⁵ the author has argued that the attachment of mother to offspring was the sole source of all bonds in human society. He doubts the existence of any romantic attachment between the sexes in the early stages of social evolution. He rejects the doctrine of Westermarck that a so-called paternal instinct would lead the male to protect mother and offspring. Rather, he holds that the sole interest of the male in the female was sexual, and that the earliest relations were highly promiscuous. In that case, the original family would center exclusively about the mother, whose attachment to her offspring was of a wild, animal sort, so deep and powerful that, on occasion, it obliterated every suggestion of prudence. She established the family, so Briffault contends, and at the same time took the first step toward organized society, when she called in a man to assist her in providing for her children. Thus the family grew out of economic need, and in its earliest form the mother occupied a position of prestige and authority.

Here is an extensive *mélange* of fact and fiction. Nevertheless, the emphasis on the importance of the mother-child relationship is well placed. Westermarck, who rejects the theory of a universal stage of mother-right, says ²⁶ "Among savages in particular

²² E. Sidney Hartland, *Primitive Paternity*, London, D. Nutt, 2 vols., 1909-1910.

²³ *Op. cit.*, Vol. I, p. 285.

²⁴ *Op. cit.*, p. 167.

²⁵ Robert Briffault, *The Mothers: A Study of the Origins of Sentiments and Institutions*, The Macmillan Co., 3 vols., 1927.

²⁶ *Op. cit.*, Vol. I, p. 295.

the tie between mother and child is much stronger than that which binds the child to its father. The savage mother is for a long time seen carrying the child at her breast, the suckling period lasting for two, three, or four years, or even more. In cases of separation the infant children always follow the mother, and so, very often, do the children more advanced in years."

But when Briffault establishes both family and society by the highly artificial device of having the mother call a man to assist her, he becomes extremely naïve and theoretical. This need of the mother for protection and aid in providing maintenance did not arise suddenly, but existed even in the pre-human stage. There apparently has never been a society in which masculine aid and protection was not a necessity for mere survival. In this respect, as in many others, there is a basic similarity in human relations at all times and places. Marriage is proverbially more important in the life of woman than of man. The reason is that in marriage man finds a sexual mate, whereas woman finds, as a rule, both mate and a means of protection and sustenance. Her dependence varies greatly from social system to social system, but it is inherent in the nature of things. As we have repeatedly insisted, this need for aid and protection is so basic that it would in time result in an inherent psychological tendency toward the exercise of paternal functions by the male. This would give him an assured importance in the family group from the very first. Whether, therefore, descent was traced through him or through the mother, would in each group depend on a variety of circumstances. One of these would be the manner of residence; another, the economic system; and still another, the universally important fact of group contacts and the tendency for culture traits to be diffused by war, trade, and migration.

While matrilineal residence may presumably have been the more frequent method in very primitive groups, that it is far from necessary is shown by the case of the Trobrianders cited above. Wherever established it would of itself favor the development of a matrilineal system, just as patrilineal residence would favor a patrilineal system. But, as already noted, there are numerous instances of matrilineal residence with patrilineal descent, though there are few of patrilineal residence with matrilineal descent.²⁷ The same mixture of features applies to other elements of the

²⁷ Tozzer, *op. cit.*, p. 173.

matrilineal complex.²⁸ Thus the matrilineal system is usually attended by the avunculate, or the authority of the maternal uncles over children, but this is far from being universal. Such mixture can be explained in part by historical accident and in part by contact and diffusion from tribe to tribe, some features being borrowed but not the related features. If these facts indicate anything, they show that the establishment of one system as over against the other is primarily a matter of time, place, and circumstance, rather than of some inherent necessity. They also suggest that the matrilineal system is weaker and less stable than the patrilineal, there being a tendency for the latter to intrude into the favored preserves of the former.

Another determining factor in the determination of the form of descent is economic life. In a broad way we may assume the hunting peoples to be lower in the scale of cultural development than the pastoral, and these lower than the agricultural. There are, of course, exceptions and much variation within each class. But on this basis an extensive statistical survey shows that mother-right is most common among the hunting peoples, and father-right among the pastoral, but that the two are about equally frequent among the agricultural.²⁹ With reference to these latter, however, it must also be pointed out that the paternal scheme prevails among the higher agriculturalists, where the ox and the plow, both a result of masculine activity, are in use. The fact that man is the domesticator of animals also accounts for the prevalence of father-right among pastoral peoples. It is among them that women most commonly have a definitely inferior position. But we must set over against these facts the very striking and highly significant facts, (1) that both kinds of descent are found at every stage; (2) that among the most advanced agriculturalists of North America were the Iroquois and the Indians of the northwest coast, who were matrilineal; and, most important of all, (3) that among the very lowest hunters patrilineal descent is found in many parts of the world, as among some of the Australians, the Fuegians of Tierra del Fuego, Bushmen of South Africa, Negritos of the Philippines, and elsewhere.

Finally, may be mentioned the fact that the position of woman

²⁸ Lowie, *op. cit.*, pp. 170 *et seq.*

²⁹ L. T. Hobhouse, G. C. Wheeler, and M. Ginsberg, *The Material Culture and Social Institutions of the Simpler Peoples*, London, Chapman and Hall, 1915, p. 153.

in primitive society lends little support to the assumption of an original matriarchal system. Lowie³⁰ finds, by comparing the matrilineal with the patrilineal tribes among the Australians, that "the lot of woman is not one jot better or more dignified among the former." Among the vast majority of savages everywhere women occupy a social position obviously inferior to that of men. But there is wide variation. Her status seems to be best among the sedentary horticulturalists, or garden agriculturalists, where there is most frequently matrilocal residence, ownership of house and land by the women or their kin, and where considerable authority over a woman's children is exercised by her brothers. It is worst under pastoral conditions, but like other features of primitive culture is deeply affected by the historical vicissitudes of time and place.

The Loosely Monogamous Pair. Westermarck holds that the institution of marriage "developed out of a primeval habit," "the habit for a man and a woman (or several women) to live together, to have sexual relations with one another, and to rear their offspring in common, the man being the protector and supporter of his family and the woman being his helpmate and the nurse of their children. This habit was sanctioned by custom and afterwards by law, and was thus transformed into a social institution."³¹

The essential features of this theory are: (1) that the sexes are drawn together by the mating instinct and held together more or less durably by parental instincts; (2) that the unions formed are, as a rule, composed of one man and one woman, but sometimes of one man and several women; (3) that the male is in a position of primary authority as protector and supporter, the family being viewed as "his."

Westermarck substantiates his view that sex and parental instincts would hold mates together by evidences showing a strong tendency among gorillas and chimpanzees for the male and female to remain together in close association during the period of helpless infancy of their offspring, the male providing protection and the female serving as both nurse and protector. Obviously, something of this sort must occur throughout the mammalian world, because the young are helpless and in most cases

³⁰ *Op. cit.*, p. 189.

³¹ *Op. cit.*, Vol. I, pp. 27-28.

the mothers need protection before and after giving birth to offspring. In the case of the anthropoids there is only one offspring at a birth and the period of immaturity lasts for ten or fifteen years. Under such conditions the infant mortality cannot be high, else the species would become extinct. Hence there must be a strong instinctive tendency on the part of parents to feed and protect their young. It must be said, however, that, although there is much evidence that the young remain with their mothers for two years or more and that pairs of male and female apes with one or even two young have been observed, we do not as yet have conclusive evidence regarding the duration of attachment between a particular male and female ape, nor as to the extent to which parental care is exercised, especially in the case of the male.

This view, however, has considerable plausibility. If we go back in imagination to the time when man was just emerging from the pre-human, before there was anything which may be called organized culture, we must assume some such condition as does Westermarck. The extreme helplessness of the human infant, and also the necessity of some protection for both mother and child during the earliest days, months, or even years of human infancy, would require an instinctive tendency for male and female to cohere in a sufficiently permanent relationship to guarantee the minimum of protection necessary for the perpetuation of the race. We do not know, and in the nature of the case cannot know with precision, just what the earliest form of this coherence was. If it did not take the form of a more or less durable pairing of parents, then we may be sure that there was some other alternative arrangement which would insure the necessary protection of mother and offspring. So far as the appeal to known facts is concerned, it favors the opinion that there was some approximation to the monogamous union from the very first. Westermarck points out that "among the lowest savages, as well as among the most civilized races of men, we find the family consisting of parents and children, and the father as its protector and supporter." ³²

Conclusion. The question of the earliest form of marriage and the family cannot, therefore, be answered dogmatically and decisively. It would appear that there is no form which uni-

³² *Ibid.*, p. 27.

versally preceded all others. Ignorance of the father's relation to offspring, the closer attachment of mother to child, and the weak parental instinct of the male, suggest strongly that descent was very probably first traced through the mother in most cases. At the same time this would not warrant the conclusion that there was a period of early feminine rule, because of the greater strength and aggressiveness of the male and the need of the mother for protection while burdened with young.

A state of indiscriminate promiscuity within a communistic group seems improbable. The classificatory system is the strongest evidence for such a theory, but it can be explained as a conventional scheme for designating social, rather than sexual, relationships. Strongly opposed to group communism is male jealousy, pride of possession, and differences in masculine strength and spirit of domination. On the other hand, this could scarcely lead to single male domination of a human horde, without introducing the danger of constant strife. This would have endangered the survival power of the group, and hence would have been tempered by some arrangement whereby the sex cravings of the lesser men could have been satisfied. Moreover, the fact that the higher anthropoids reveal a tendency for the male to remain with the female and young as protector, suggests that there may have existed very generally and from the very earliest times a high degree of monogamy. This may very well have been of a rather loose sort, and often temporary.

If, therefore, any conclusion seems warranted, it would be that the various forms probably existed side by side, in varying proportions. The single-pair marriage and family may very well have been the variable norm, about which were opportunities for irregular relations. Alongside may have been polygynous groups for the stronger males, polyandrous groups for the weaker ones, and, under special circumstances, communistic groups.

REQUIREMENT OF MARRIAGE WITHIN OR WITHOUT THE GROUP

Exogamy. It is a rule among nearly all peoples that an individual must find a mate outside of certain relationship groups. This is known as the rule of exogamy. While there are some places where the marriage of parent and child or of brother and sister is not prohibited; and while the marriage of brother and sister has been the most highly favored form in certain very

exceptional cases, as among the Ptolemies; the fact remains that the prohibition of marriages between such close relatives is nearly universal. The scope of the prohibited circle varies, but with rare exceptions it includes *all persons having the same name or totem*. The marriage of parallel cousins is thus prohibited, though the marriage of cross cousins is looked upon with especial favor.

Punishment for violation of the exogamous rules varies greatly. Among many peoples violation breaks both sacred rules and civil regulations. It is thus a sin and a crime, and is usually punished by immediate death. In other cases it leads to banishment, or to severe corporal punishment. In still other tribes, it results merely in ridicule or contempt, forms of punishment which are often nearly intolerable for the savage.

For two generations there has been an enormous amount of speculation as to the probable origins of exogamy. One of the earlier explanations attributed it to wife capture. It was assumed that this would lead to a rule requiring men to secure their mates from other groups. There are several weaknesses in this argument. Many peoples show no relics of wife capture in their marital customs. Wife capture is vigorously resisted by the losing group, so that it could have served only as a supplement to other methods of obtaining wives. Moreover, under a rule limiting wives to captured women, a strong group would succeed in capturing all the women of a weaker neighbor. This would leave the latter devoid of women and thus shut off the supply. Actual evidence, as well as theory, thus fails to support this explanation.

A more fundamental reason advanced to explain exogamy was that close inbreeding is deleterious to the qualities of offspring. Certain writers believe that primitive man would have observed a difference in the quality of the offspring of close blood relatives and would have taken measures to prevent such unions. Modern biology, however, has tended to reduce the force of this argument by showing that inbreeding is deleterious only when the hereditary qualities of the stock contain recessive defects. It is a result which occurs irregularly, and, therefore, quite beyond the probable powers of observation of primitive man in such matters. Moreover, as just noted, the rules of exogamy do not prevent the marriage of first cousins, provided they be of different totemic groups. Such cases, being found in the same societies with strict rules of

exogamy, cannot be reconciled with the idea that close inbreeding is considered injurious.

The argument that inbreeding is injurious takes another form which has great theoretical interest and value. If we admit that recessive defects are numerous in the human stock, it can be argued that, since too much inbreeding would have proven disadvantageous in the struggle for existence, an instinctive repugnance against the mating of close blood relatives may have evolved as an inherited accompaniment of the mating instinct. That is, in so far as inbreeding resulted in deficiencies in the offspring, it would have tended to eliminate those stocks practicing it. They would have been at a disadvantage in any case with those stocks in which inbreeding was not practiced. In the ordinary struggle for existence which goes on constantly in every population, natural selection would have favored those stocks in which there was the least tendency toward incestuous relations. Those advancing this argument assume that there is an instinctive repugnance in man against incestuous relations; that this would have led to the habit of avoiding hearth mates or close relatives as marriage mates; and that this habit of avoidance would soon have been erected into a strict rule of prohibition. Such an argument has more theoretical than factual support. The greatest difficulty with it is the considerable doubt whether there is in fact any such instinct.

Several arguments may be advanced against the theory of instinctive repugnance. In the first place, incest is far from unknown, showing that the so-called instinct is, in any case, weak. In the second place, exogamy always forbids the marriage of first parallel cousins, but cross cousins, who are also first cousins, are very frequently preferred mates. In the third place, it seems highly improbable that close blood relatives, *who did not know themselves to be such*, would have anything on which to base a feeling of sexual repugnance.

As over against that theory, therefore, we may advance the theory that sex attraction between hearth mates, or children reared in the same household, is less vigorous and poignant than between individuals reared in different households. It seems to be true not only that man desires sex variety, but that continuous association from childhood to maturity is not conducive, as a rule, to warm sexual attraction. This would establish a custom

in favor of marriages between offspring of different familial groups, and custom would soon become law. It is true that in some societies boys and girls of the same family are reared apart, but it seems reasonable to suppose that this custom arose after, and largely as a consequence of, the vigorous rules against incest.

According to this view there is an instinctive basis for the rule, but it is not an instinctive horror of incestuous relations. It is rather the weaker sexual stimulus of household mates. That the feeling of horror is purely a matter of training and convention is shown by the fact that it varies in scope and intensity according to the rules of different tribes. It is on a precise par, therefore, with the feelings we have regarding violations of rules of chastity, insults to the flag, or other sacrilegious actions.

THE QUESTION OF THE EQUALITY OF THE SEXES

Nature of the Problem. There is an historical assumption of long standing that men excel women in both physical strength and mental abilities. With the rise of feminism this assumption has been subjected to vigorous criticism. Support for the assumption was found in the historical achievements of the two sexes; but to this it was replied that the women had been subject to repression and prohibited by convention from giving full expression to their powers.

This question should be approached in exactly the same manner as the question of racial equality. Each sex varies considerably with respect to every trait. The variations are distributed more or less symmetrically about the sex norm, like the statures of soldiers. We should have to inquire, then, which of the norms or averages exceeds the other, and what is the relative range of variations. When we find that women are, *on the average*, shorter in stature, mature earlier, and in brain size average about 10 per cent less than men, we do not fail to recognize that many women are taller, mature later, and have larger brains than many men.

The Question of Variability. When it became clear that the average differences between the sexes are small, primary interest turned to the question which is the more variable. The reason for this is that the more variable sex would be more likely to produce those unusual combinations of qualities which we call genius. There followed a multitude of researches on the sizes of infants at birth, sense powers, school grades, and what not. They all

failed to answer the really important question convincingly, for the simple reason that there is no simple laboratory test for those powers of abstract thought and creative imagination which mark the highest genius. We are thus thrown back upon the facts of life. Here it appears that nearly all, if not all, the world's geniuses of the first rank have been men. This is clearly so in the fields of philosophy, science, and invention. Where women, as Mme. Curie, have made notable contributions to science, these have resulted from painstaking laboratory experimentation rather than abstract theorizing and generalizing.

The contrast between the sexes seems clearest, if we take the fields which women have cultivated most assiduously, and in which they have had greatest training and freest scope. In music, for example, they have held their own as performers and interpreters, but have fallen far behind as composers. The same is true of dramatic art. In painting and sculpture they have done better, but seem to have no claimants for first rank. In literature they have achieved distinction more frequently than elsewhere, and opinion will doubtless differ as to whether any of the women poets and novelists of the last century deserve to rank with the outstanding men of the same period. On the whole, it seems fair to conclude that in all the foregoing fields men more frequently reveal genius of the highest order. The same may be said of those activities requiring domination and leadership, such as administration, statesmanship, and generalship.

The Basic Differences. The foregoing and other differences between men and women can be understood only in the light of their primary differentiation as male and female, and the vast differences in the rôles they play in the perpetuation of the species. We may first note the fact that the metabolism of the female is anabolic and that of the male katabolic. By this is meant that the female has a tendency to store up reserve tissue, whereas the male is in general more active, dynamic, and less inclined to put on weight easily. This difference is clearly related to their respective reproductive rôles. The female must have a tendency to store up and conserve bodily energy, in order to carry out the functions of gestation and nursing. Numerous other and less evident differences are correlated herewith, such as those of blood composition and glandular activity. In temperamental qualities it seems to be generally agreed that women excel in patience,

and in capacity for attention to details. They are intellectually more receptive, less creative, and less aggressive. Women are generally believed to be more sympathetic, an attribute correlated with the motherly functions. "The potential mother in every woman commands a larger range of her endowment, penetrates deeper into the roots of her being, radiates more intimately to the finer modes of her expression, than is true of any sex determined modes of masculine psychology." "The female of the species is more deadly in earnest for the species."

In the second place, we may note certain growth differences. It is well known that girls mature earlier than boys by one or two years. Bone ossification occurs earlier in them; they acquire permanent teeth earlier; they learn to walk and otherwise acquire muscular control earlier. These differences are of minor importance as compared with the differences in brain development. At maturity the female brain is about 10 per cent smaller than the male. Until ages thirteen or fourteen the difference is, however, only about half that amount. Thereafter the rate of growth of the female brain slows down, whereas that of the male continues to grow for several years at about the same rate as before.³³ The result is that at maturity the feminine brain is smaller, both absolutely and also relatively to stature and body weight.³⁴ (Figure 68.)

It would seem well-nigh certain that such difference accounts for the scarcity of female geniuses. If we seek for an explanation of this difference, I think we may find it in the greater elaboration of reproductive organs in the female. We may here recall the opposition between individuation and genesis mentioned in Chapter VII. It was there shown that the energies of the organism cannot be used for both reproduction and individual development at the same time. It would seem that the growth of the female requires that a larger proportion of the energies available, from the approach of puberty onward, be drawn off for the elaboration of a larger and more complex set of reproductive structures. There results a slowing down of brain increase. Were woman to have not only a monopoly of child-bearing and nursing, but also complete equality with man in the higher powers of the brain,

³³ See for figures S. D. Porteus and M. E. Babcock, *Temperament and Race*, Richard G. Badger, 1926, pp. 158-159.

³⁴ See Raymond Pearl, *Studies in Human Biology*, Williams and Wilkins, 1924, pp. 56-57 and 87, and Aleš Hrdlička, *The Old Americans*, Williams and Wilkins, 1925, pp. 185-186.

poor man would cut a sorry figure in social life. As might have been expected, however, nature has made their functions more or less complementary.

Finally, we may also recall the discussion in Chapter VI of graded intersexuality. There are masculine women and feminine men, so that the differences between the sexes are on an average

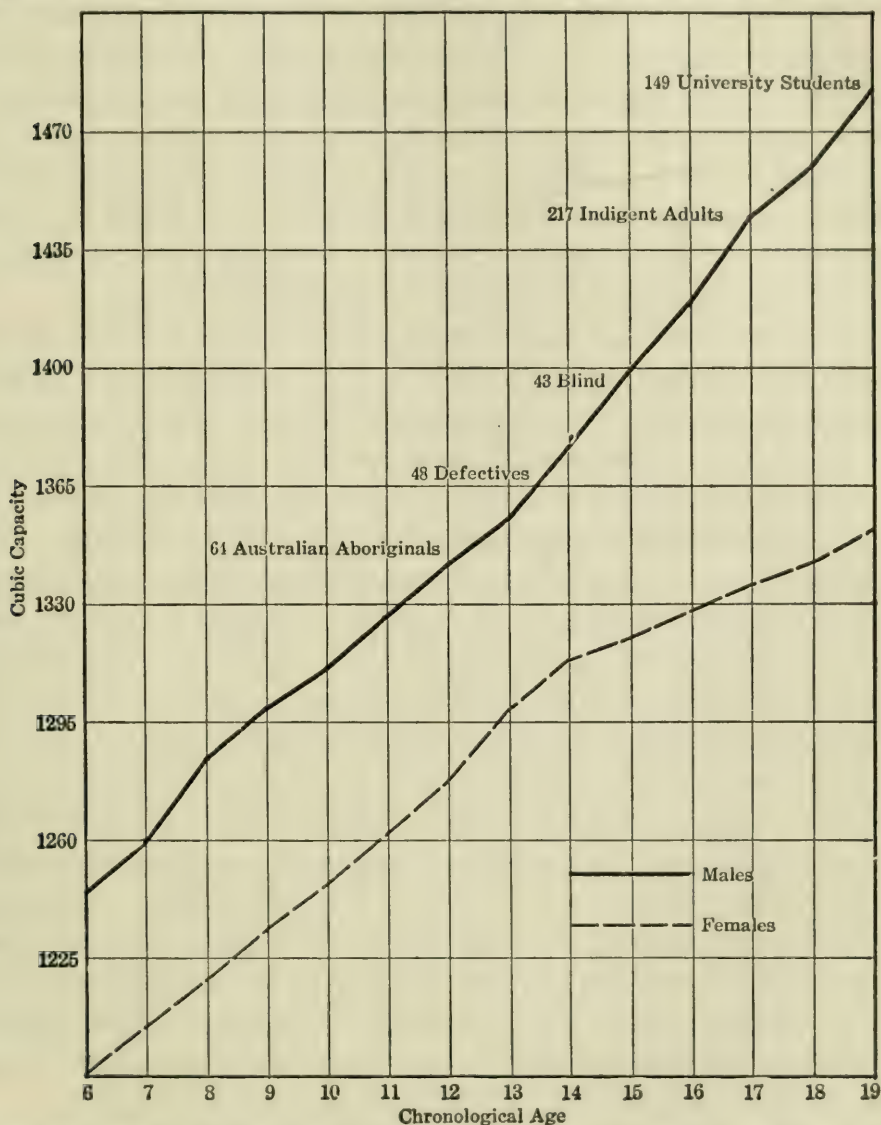


FIG. 68.—This graph illustrates two researches. It shows, first, the comparative growth of brain size in cubic centimeters for the two sexes, as shown by measurements on several thousand primary, secondary, and university students. Secondly, it shows comparative brain development in Australian Aborigines, three classes of defectives, and university men. Figures in all cases are only approximate, since measurements on living persons are subject to a considerable margin of error. From S. D. Porteus and M. E. Babcock, *Temperament and Race*, Richard G. Badger, 1926, by permission.

always small. When this fact is taken into account, together with the fact that women have been more extensively repressed by social custom, we may expect that the present release of women will result in a larger number of women achieving distinction in fields which heretofore have been almost exclusively reserved for men. To this end the great reduction in the size of the family and the more efficient organization of household management are also contributing in no small degree. They result in the release of a larger portion of feminine energies for diverse social activities. Women are seizing these opportunities with great avidity, so that there is a rapidly increasing number of women artists, writers, scientists, and business managers. It does not seem probable, however, that the feminine sex will ever produce individuals comparable to the highest geniuses of the past.

Significance of Sex Differences. The bearing of this discussion of sex equality on the family and the social rôle of the sexes is highly important. While it is probably true that some women are qualified to enter any line of activity undertaken by men and to succeed therein, it is nevertheless true that the vast majority of women enter a very limited number of occupations. The primary reason for this is that, in last analysis, there is an inherent conflict between the pursuit of a gainful occupation and the functions of wifehood and motherhood. The fact that girls expect to marry leads them to enter trades of little skill and requiring only short apprenticeships. If they prepare for an occupation, they incline to choose vocations less arduous than business, law, and medicine. Teaching claims many of them because in it they find a market value for the qualities of sympathy and patience with children which they seem to possess in greater degree than men. In the business world, the vast majority of women occupy positions requiring capacity for painstaking and conscientious attention to details, rather than capacity for management and the shouldering of responsibility. At the same time, a few women have risen to very important positions of the latter sort.

But there is one necessary social function which permanently militates against the achievement by women of an economic status altogether equal to that of men, namely, race perpetuation. This makes greater demands on the time, physical strength, and nervous resources of women than of men. It is only the unusual woman, therefore, who can successfully combine a career of any

distinction with the raising of a family. The vast majority of women find themselves necessarily in a position of economic dependency after they become mothers. We have seen that child-bearing made woman partially dependent on man from the first and tended always to force her into a position of inferiority and subserviency. Unless her strength is to be overtaxed and the life of offspring endangered, the mother must receive care and protection for a considerable period. Many extreme feminists, in their clamor for complete and perfect sex equality, lose sight of this very fundamental fact. The only way women can escape this handicap in economic competition with men is to forego child-bearing. Yet this is not merely the only social function on which they have a monopoly, but one which is absolutely essential for the maintenance of a strong and vigorous community life.

The race must and doubtless will be preserved. If not by college graduates, the educated and refined, then by the uneducated and unrefined. Moreover, since those women who become mothers will, for the most part, be under the necessity of support, they will be economically dependent either on their husbands, the fathers of their children, or on the state or community at large. Some extreme feminists favor state support as a means of freeing women entirely from dependency on husbands, and hence from the subordination which that seems to entail. But since most of our social tradition and arrangements are contrary to such proposals, some approximation to the existing plan of family life seems likely to endure, so far as the vast majority of the population is concerned. Progress, however, is being rapidly made in the direction of increasing the dignity and worth of the wife and mother within the family institution, and we shall probably go much further in that direction. The idea of an independent career holds little glamour for the vast majority of even well-educated women. Marriage tends more and more to become a partnership between a man and a woman, each of whom has both authority and responsibility. As the personalities of women are more fully drawn out by education and social opportunity, and as the size of the family is brought under easy control and standardized at a small number, the community will increasingly recognize the inestimable value of the services rendered by women as mothers, and dignify such services with social esteem. In the various activities of society, the two sexes are by no means equal,

either in actual or potential achievement, but their powers are equally essential and important in the total life of society. The nature of sex differences and functions sets limits to the division of labor and lays down the main lines for the activities of each sex. Heretofore women have performed the great tasks of racial perpetuation and child training by virtue of a fate they could not escape. Now that motherhood becomes voluntary, society begins to recognize these services at something like their real importance. At the same time, women are placed in a position to enforce a just claim to equal rights in the development and expression of their personalities. This claim is deeply affecting the traditional position of woman and transforming our marital institutions.

DURATION AND DISSOLUTION OF MARRIAGE

Among Primitive Peoples. Although marriages among primitive peoples are as a rule entered into for an indefinite period or for life, they are also not uncommonly entered into for fixed or limited periods. There is an almost bewildering variety of customs; there seems to be little correlation between marriage customs and the general stage of social evolution; several diverse customs may prevail among the same people. Among some of the lowest savages, such as the Veddahs of Ceylon, the Andamanese, and the Australian aborigines, the marriage tie is nearly indissoluble, divorce being extremely rare or even unknown. Among others of considerably higher social evolution, the marriage bond may be dissolved at the whim of either party, or by the intervention of either of their families. Trial marriage in one form or another is widespread. There is the custom, for instance, whereby couples enter into sexual relations for a period as a means of perfecting acquaintance and of increasing assurance that a definite contract would be mutually satisfactory. Prior to the Reformation there existed the custom in Scotland whereby men selected mates at the public fairs. After a year of cohabitation they were free to separate or to make their contract permanent.

There are many variations of the trial relationship. Moreover, there seems to be no correlation between such customs and others showing little or no regard for premarital chastity. Sometimes extreme looseness of love ties before a definite choice is made is accompanied by a strict enforcement of faithfulness and lifelong

union afterwards. Among the Trobrianders, who are quite primitive, girls enjoy an extraordinary license before marriage, but infidelity after marriage is nearly unknown and is even unmentionable.³⁵ On the other hand, it sometimes happens that strict regard for chastity before marriage is followed by more or less provision for sexual variety afterwards, or by easy divorce. Moreover, the force of public opinion deeply affects the actual operation of nominal rights and privileges. "In Tonga, where a man divorced his wife by simply telling her she might go, and in Hawaii where either party could separate at will, it was considered disgraceful to separate after the marriage had lasted for some time."³⁶ This is not unusual.

Generalization is thus nearly impossible. "Among a large number of tribes the husband is said to be able to dissolve the marriage at will or on the slightest grounds or pretexts, and in the majority of these cases a similar right is granted to the wife. . . . Of certain tribes we are only told explicitly that the wife can leave at will. In some, or most, of these tribes the husband presumably possesses the same power: but this is not the case among all of them."³⁷ In some cases a marriage becomes indissoluble upon the birth of a child.

Divorce among primitive peoples is usually possible only for "just cause," but what constitutes a just cause varies greatly. No doubt the most widely accepted ground for divorce is adultery by the wife; but this is not a universally approved ground. Cases are also reported where the wife may divorce the husband for the same cause. The second most widely accepted ground for divorce of wives is barrenness. Wives may be divorced if lazy; if poor cooks; if negligent of children and household duties; if quarrelsome, or disobedient, or thievish, or suspected of witchcraft; if diseased; if too old; if they desert their husbands. The rights and prerogatives of each sex vary greatly from tribe to tribe. The rights of wives are generally greater under metronymic descent, especially when this is associated with matrilocal residence, than otherwise. Their rights tend toward the vanishing point under the religious proprietary family with its *patria potestas*, or unlimited power of the husband over wife and children.

³⁵ Malinowski, *op. cit.*

³⁶ Westermarck, *op. cit.*, Vol. III, p. 285.

³⁷ *Ibid.*, p. 278.

Divorce among primitive peoples is often accompanied by economic loss and hardship. Commonly the divorced wife goes back to her kinfolk. Old rejected wives are not warmly welcomed by their kindred, as a rule. Children not infrequently are retained by the injured party, whether husband or wife, but this rule is quite variable. Young children often go with their mother, regardless of the circumstances of the separation. Local customs of property holding and inheritance influence the disposition of the older children. Under matrilineal residence and metronymic descent the children are very likely to be retained by the wife's family.

Among Advanced Peoples. The diversity in the durability of marriage and in the grounds for divorce which we observe among primitive peoples is found also among advanced civilizations. Thus the ancient code of Hammurabi, king of Babylon, about 2250 B. C., authorized divorces to husbands on the grounds of barrenness, foolishness, neglect, and disease; adultery on the wife's part gave the husband legal right to throw her, bound to her paramour, into the water. Under certain conditions the husband was required to return to a divorced wife her dowry and other property and her children. Wives also were allowed to sue for divorce.

Under the patriarchal family of the ancient Hebrews, the husband was able to divorce his wife at will by simply handing her a bill of divorcement declaring the separation final; she was permitted to remarry. Among the Romans of the Empire, divorce was feasible by mutual consent, or even at the will of either party. It was through the resort to Roman law and custom that Herodias was able to divorce her husband and marry his brother Herod, for the denunciation of which John the Baptist lost his head. The extreme freedom of divorce which prevailed under the Empire was reached only by a progressive liberalization of the earlier code of Romulus. In the older Roman family, the institution known as the *patria potestas* enabled the husband to divorce his wife virtually at will for a number of causes. This power generally disappeared under the Republic; free marriages, in which the power of the husband over the wife and children was greatly reduced, became usual; and therewith arose the right of wives to divorce husbands for cause. There is a considerable parallel between the evolution of Roman matrimonial institu-

tions during the later Republic and the earlier Empire and recent evolution in this country. With increase in wealth, the progressive individualization of women and elevation in their social status, together with the considerable decline in the average size of families, divorce became almost the rule rather than the exception. Most of the leading statesmen of Rome were married several times, and a tombstone inscription of the early days of the Empire pays this tribute of a grateful husband to his deceased wife, "Seldom do marriages last until death undivorced."

Among modern western nations, ideals of marriage and divorce have been greatly influenced by the development of ecclesiastical opinion and authority. The early Christians followed the Roman law wherein marriage was viewed as a civil contract subject to dissolution for adequate reasons. They at first added a priestly benediction and then a bride-mass. In his fragmentary pronouncements on the subject, Jesus had limited the just grounds for divorce to adultery. This view at length became the rule of the Church. Marriage was listed as one of the seven sacraments in 1164. Thereafter priestly authority gradually increased. Slowly there developed the sacramental view of marriage, until, at the Council of Trent (1563), the Church asserted claim to a monopoly of the right to solemnize marriage vows.

This result was slow of realization because of an inherent contradiction in the Christian tradition. By the Church Fathers, woman was looked upon as unclean. It was through her that Adam sinned, fell from grace, and all men came to be born in sin. Marriage was to be tolerated only as a necessary evil, a means of preventing the even greater evils of sexual irregularity and immorality. Asceticism, celibacy, and monasticism were looked upon as superior spiritual estates. The Church was thus led to erect the marriage ceremony into a magical rite, whereby a relationship that was inherently sinful was made holy and worthy of divine approval.

But, having made marriage a sacrament sealed by the Holy Ghost, the Church was logically compelled to take the position that it was indissoluble. It was not a civil contract governed by practical considerations and by a theory of legal rights and privileges, but a spiritual bond of deeply religious import. At the same time, the Church was driven by practical considerations to admit the doctrine that any marriage that was not entered into under

wholly valid conditions might be dissolved; it was the churchly view that such unions had never, in fact, been real marriages. Gradually so many "reasons" were found for declaring a marriage invalid, that, as Lord Bryce said: "It was easy, given a sufficient motive, whether political or pecuniary, to discover some ground for declaring almost any marriage invalid."³⁸

The Protestant Reformers rejected certain features of the Catholic tradition as to marriage, especially those relating to celibacy and monasticism.³⁹ Although Martin Luther was most vigorous, not only in his denunciation of the institution of sacerdotal celibacy, but also in his assertion of marriage as a civil contract, the theological view of marriage continued to be the rule among Protestants until well into the nineteenth century. It was only after the French Revolution, in fact, that the secular view of marriage as a civil contract began to win widespread acceptance; only recently has this view become the prevailing view in Protestant communities. Most European countries have now made the civil or state authorization of marriage obligatory, though it is still true that in some communities the ecclesiastical ceremony occupies a larger place in popular thought and emotion.

Divorce as an Index of Social Change. There is probably no phenomenon in the field of social ethics which indicates more strikingly than does the increase of divorce the great distance modern society has traveled from the social order that prevailed for centuries prior to 1800. Its extent in any community is one of the most sensitive indexes of the depth to which the main currents of progressive industrialism have affected the foundations of that community's life. Like all matters relating to sex and family, divorce remained much longer under the control of ecclesiastical authority and religious tradition than most other social institutions. Although marriage has become more and more a civil contract and less and less a religious sacrament, the authority of the Church in both marriage and divorce is, as indicated above, still considerable. But as an English historian⁴⁰ said sixty years ago regarding divorce: "There is probably no other branch of ethics which has been so largely determined by

³⁸ Quoted by Westermarck, *op. cit.*, Vol. III, pp. 330-331.

³⁹ See Henry C. Lea, *An Historical Sketch of Sacerdotal Celibacy in the Christian Church*, J. B. Lippincott and Co., 1867.

⁴⁰ W. E. H. Lecky, *History of European Morals*, London, 1899, Vol. II, pp. 271-272.

special dogmatic theology, and there is none which would be so deeply affected by its decay." We shall see, however, that the decline of religious authority is only one of the causes for increased frequency of divorce.

Increase of Divorce. In American law, marriage has always been looked upon as a civil contract. It could, therefore, be dissolved by local courts through equity proceedings. The frequency of divorce in this country as a whole could consequently be ascertained only by a count of all cases heard in all the local courts of the entire nation. Owing to increasing popular interest in the subject, Congress authorized such a count for the twenty years 1867–1886, inclusive. In due time it authorized another such count to cover the years 1887–1906 inclusive. There was another count made in 1916, and now we are getting annual reports on both marriages and divorces from the Bureau of the Census covering every county in the Union.⁴¹ Some notion of the rapid increase in numbers may be gathered from the fact that divorces in 1867 numbered only 9,937; in 1887, 27,919; 1906, 72,062; 1916, 112,036; 1922, 148,815; and 1925, 175,449. In the twenty years 1867–1886, the total number was 328,716; in the next twenty years, it was 945,625. In the single year 1925 there were more than one-half as many divorces as in the entire twenty years, 1867–1886. The increase in the number of divorces has been several times as great as the increase in population. The number of divorces per 100,000 of the married population was 81 in 1870 and rose to 200 in 1900; in 1916 this number had risen to 281, in 1922 to 330, and by 1925 had reached 370, thus rapidly approaching twice the number of 1900.

Divorces have grown at a much faster rate than marriages also. In 1870 there were about 34 marriages to one divorce; in 1880, 24; in 1890, 16.2; in 1900, 12.3; in 1905, 11.9; in 1916, 9.3; in 1922, 7.6; and in 1925, 6.7.

This does not mean that marriages on an average last 6.7 years, but that in 1925 there were only 6.7 times as many new marriages contracted as there were old ones dissolved by divorce. This ratio varies widely from state to state. In Nevada, a Mecca of divorce seekers, there were as many divorces granted as there were marriages solemnized; in Oregon, the ratio was 2.4 marriages

⁴¹ Bureau of the Census: *Marriage and Divorce: 1925*, Government Printing Office, 1927.

to one divorce, and in Wyoming, 2.8. In general, the ratio of marriages to divorces was low in the North Western and North Central states. It was highest in the District of Columbia, 35.7; New York, 23.6; Maryland, 15.7; North Carolina, 14.8; Georgia, 13.7; New Jersey, 11.8; and Louisiana, 11.2. The chief reason for the high ratio of New York is that its law permits divorce on the sole ground of adultery. South Carolina does not permit divorce on any ground. The total number of marriages in 1924 in the United States was 1,178,318 and in 1925, 1,182,005, an increase of 3,687. In 1924 the number of divorces was 170,952 and in 1925, 175,449, an increase of 4,497.

The following table shows the number of divorces per 100,000 of the total population in various countries for the years 1921 or 1922:

Austria	87	France	82
Belgium	46	Germany	63
Denmark	40	Japan	91
England	8	U. S. A.	136

During the past forty years the United States courts have granted more divorces each year than all the courts of all other

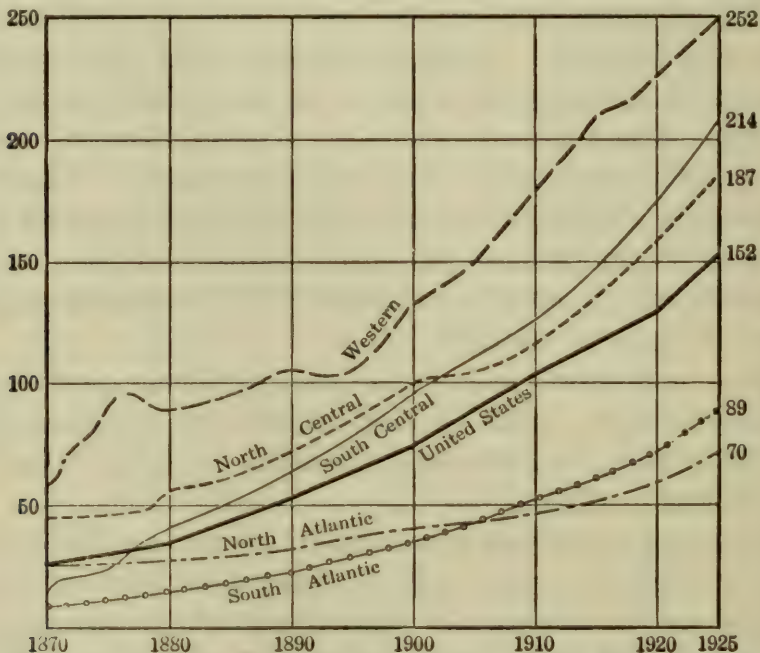


FIG. 69.—Divorces in this country per 100,000 population, 1870-1925.

countries of the white man's world, exception being made only of Russia during the last few years. The accompanying chart shows the number of divorces per 100,000 of the population for the

United States as a whole and for the various divisions of states at different dates. The contrast between the conservative East and the progressive West is sufficiently striking. The eastern states, moreover, now have a very large contingent of Catholics in their populations. The low rate in the South Atlantic states is not at all due to this, but to the backwardness in industrial development and the continued firm hold of religious orthodoxy.

Grounds for Divorce. By the "grounds for divorce" is meant the legal bases upon which divorces are granted by the courts. They may or may not be the immediate causes of the divorce, because people are strongly impelled to tell "good" reasons rather than "real" ones in such matters. Furthermore, the social causes for the *increase* of divorce during the past two generations should be distinguished from the *immediate* causes. The latter are the individual dissatisfactions, and the former the social conditions which permit these dissatisfactions either to arise or to express themselves more freely. The following table shows the percentage distribution according to *legal grounds* of divorces granted in the twenty-year period 1887 to 1906 and the year 1925.

GROUNDS	GRANTED TO HUSBAND		GRANTED TO WIFE		TOTAL DIVORCES	
	1887-1906	1925	1887-1906	1925	1887-1906	1925
Adultery	28.7	16.0	10.0	7.1	16.3	9.8
Cruelty	10.5	27.3	27.5	42.4	21.8	37.9
Desertion	49.4	45.8	33.6	25.7	38.9	31.8
Drunkenness	1.1	0.3	5.3	1.9	3.9	1.4
Neglect to provide	....	....	5.5	5.2	3.7	3.7
Combinations of grounds	4.5	3.5	11.8	9.4	9.4	7.6
All other causes	5.7	7.0	6.4	8.2	6.1	7.9

A comparison of these figures with those for earlier periods shows some interesting changes in the order among the most important grounds. Thus, in 1867, the three principal causes ranked in the order of desertion, adultery, and cruelty; by 1906, the order was desertion, cruelty, and adultery; and by 1925, cruelty, desertion, and adultery. Whereas sixty years ago only 13 per cent of divorces were granted on the basis of cruelty, latterly nearly three times that proportion have been granted on this ground. The increase in the proportion granted to husbands on this ground is especially striking. The proportion based on adultery diminished from 25.6 in 1867-1871 to only 9.8 in 1925. But it is probably quite contrary to fact to conclude from these

changes that husbands and wives are more cruel to each other than formerly, though more faithful. There is doubtless less physical cruelty. These changes are, therefore, due to changes in legislation among the states and the development of the social convention of making cruelty the more usual ground. This term has now been broadened to include purely psychic dissatisfaction and temperamental incompatibility, which are included in judicial procedure under such legal terms as "cruel and abusive treatment," "indignities rendering life intolerable," "excesses and outrages," and so forth. These new terms indicate a refining of sentiment and a more delicate regard for the psychic adjustments in married life. The proportion due to desertion has decreased, though slightly, during this long period.

There are also interesting differences between the grounds upon which divorces are granted to husband and to wife. Nearly half of all divorces granted to husbands are on the ground of desertion, while husbands much less frequently than wives are divorced for infidelity. Both of these grounds reflect the traditional liberties of the male and the stricter convention surrounding the female in our society.

One or two additional items of interest include the fact that slightly more than two-thirds of all divorces are granted to the wife. The proportion in 1925 was 69.9 per cent. It has appeared from the very beginning of the modern divorce movement that women have taken the aggressive. That is another indication that divorce is to be viewed as a symptom of all those social conditions affecting the status of woman. There is probably reflected in this also an element of masculine chivalry; that is, a divorce having been agreed upon, the husband allows the wife to bring the suit, it being less of a social handicap to him to have been divorced than to her. Only 3,776 divorces, in 1922, were granted to persons married in foreign countries. In 1925, nearly half of all divorces were granted to persons who had been married six years or less and only 10 per cent to persons who had been married twenty years or more. On the whole, it may be said that every year after the first four by which the length of a marriage is prolonged adds distinctly increased security for its further continuance. The proportion of divorces granted to couples reporting children was 36 per cent in 1925, as compared with 39.8 per cent in the twenty-year period 1887-1906. This decrease is

undoubtedly a reflection of the steady decrease in the size of families, itself an increasing factor in feminine unrest and family instability. In over three-fourths (77.9 per cent) of all the cases reporting children, the divorce was granted to the wife. This would mean that in these cases the mother would not be separated from her children, whereas for the husband divorce means, as a rule, separation from both wife and children. The average number of children for all cases reporting children was only 1.8 in each of the years 1922 to 1925.

Causes of Divorce. As indicated above, we must distinguish the immediate causes of divorce, representing factors working within the family circle, from those social conditions which have resulted in the increase of divorce. We may call the former the immediate individual causes and the latter the general social causes.

Immediate individual causes of divorce include a great variety of conditions resulting in dissatisfaction with the marital relationship. Obviously, if individuals are well satisfied with each other, they will gladly remain together of their own volition, even in the absence of any law regarding marriage. The internal causes of disruption rank all the way from differences in taste to positive physical repugnance. No doubt the most frequent single factor is lack of complete satisfaction of the sex instinct. This intensifies the nearly universal desire for variety of sex experience, a desire kept alive by the increasing freedom of movement, the multiplied social contacts of the sexes, and the constant reference to sex affairs in the press, the theater, and the movies. Jealousy and suspicion are frequent causes. There are, however, many other causes such as disagreement over money matters, or differences of opinion regarding the education or religious training of the children. Divorce is observed to be more frequent where husband and wife are of different nationality, or of different religion. It sometimes happens that the husband is dissatisfied because of the laziness of the wife, her indifference as a cook, or frequent manifestation of bad temper. On the other hand, the wife may be dissatisfied because the husband is lazy or fails to provide adequately, or because he fails to share his earnings with her, or because of abuse and humiliation.

The general social causes, whereby we may explain the steady increase in the number of divorces during the past three genera-

tions, include all the major forces affecting the status of women and weakening the strength of family bonds. In his study of the modern divorce problem, Lichtenberger ⁴² emphasized the following causes: the rising standards of living and the increasing stress of economic life; reduction of economic functions of the home; the economic emancipation of women; the liberalism and individualism of modern thought; the popularization of law; popular education; the passing of religious dogmatism; the demand for an equal standard of morals; improved social status of women; new and higher ideals of sexual morality and domestic happiness. Divorce is fundamentally a symptom of the rising social status and self-conscious assertion of the feminine sex. It marks a decay of patriarchal ideas and ideals with their male supremacy and female subordination. The causes of these changes we study below under the headings: The Capitalist System of Industry; Democratic Ideals; Rise of Science and Decline of Religious Orthodoxy; Urbanization; and Birth Control.

Modern Significance of Divorce. It is almost universally the custom to speak of divorce as one of the great modern evils. The view we have taken here is that divorce is a symptom of fundamental social conditions which are affecting the modern family. If divorce is an evil, then these conditions of which it is a symptom must also be looked upon as evil. There can be little doubt that, other things being equal, the growing instability and frequent disruption of the family constitutes a social loss. Those extreme radicals who look forward to the complete disappearance of the monogamous family and the introduction of purely temporary trial marriages fail to give full force to the fundamental importance of the family as an economic, educational, and socializing institution. There is, therefore, ample ground for looking with apprehension upon the increasing prevalence of divorce. There can be no doubt that increased ease of divorce makes it more frequent. Six years after the French, in 1792, declared marriage solely a civil contract and authorized divorce on many grounds, including incompatibility of temper, the number of divorces in Paris exceeded the number of marriages. Nevertheless, a change in the law would to-day be of secondary importance, for divorce is a symptom of the basic social forces of the age.

⁴² J. P. Lichtenberger, *Divorce: A Study in Social Causation*, Longmans, Green and Co., 1909.

Moreover, mankind seeks to increase personal freedom and opportunities for individual development. Man looks forward to a happy millennium, in which individual sacrifice to social necessities may be reduced to a minimum, and in which opportunities for individual development and the expression of individual capacities may reach a maximum. Under the influence of these ideals the modern increase in wealth has permitted a considerable relaxation of former social compulsions upon the individual. There has been an accompanying refinement of sentiments, so that forms of marital cruelty and incompatibility which at one time were looked upon as socially necessary or inevitable are now viewed as positively immoral, or contrary to the highest sense of justice. It is held that a marriage based on love and confidence is immeasurably superior to one based on force, personal dependence, and a sense of inferiority on the part of women. Consequently, women are no longer called upon to endure the hardships, brutalities, and personal frustrations which were formerly considered their lot. There is now undoubtedly a greater honesty and sincerity regarding the marital relation than formerly. It is now very widely held that, when genuine affection between husband and wife has ceased, the true marital bond has been dissolved in fact, and that divorce is only a legal recognition of an actual state. This is the crucial fact ignored by those who look upon marriage as indissoluble. While, therefore, we may hold that increasing divorce is a symptom of the operation of social conditions unfavorable to family stability, and so to social stability and efficiency in general, we must also hold that it is a symptom of the emergence of a new status of women, and of higher, more humane ideals in the relations of the sexes.

Proposals for Reform. The proposals for checking the further disintegration of the family are numerous and variable. Obviously, if one thinks easy divorce a good thing, he views present tendencies with complacency. If he thinks divorce an evil in itself, he will try to stop divorce without dealing with its underlying causes. Those who still hold the theological view of the family would either prohibit divorces altogether or limit them to cases of adultery. Such legislation is, however, believed by many to be useless where not strongly supported by public opinion. Experience has shown that, where the laws are too strict, individuals wishing divorce will either connive to create the necessary

legal evidence or will move to other domiciles where the laws are more lax. In all matters relating to the regulation of morals by the use of police power, the law itself is not a guarantee of the actual behavior; this is well illustrated by the present state of prohibition in this country.

Then there are numerous proposals designed to increase marriage restrictions. These rank all the way from requirements that banns be published several weeks in advance of the marriage, to laws requiring all persons seeking marriage licenses to undergo physical examination to determine their physical soundness, particularly freedom from venereal infection. Legislation of this latter sort is extremely difficult to enforce for the simple reason that, if restrictions are made too difficult, individuals enter upon sexual relations without the sanction of the law.⁴³ Thus the so-called "eugenic laws" requiring examination for venereal infection could not prevent the cohabitation of individuals to whom marriage licenses were refused. They may go out of the state and get married; or they may bribe a physician to sign the needed certificate. It would seem much better to handle this particular problem by education and by declaring such diseases infectious. Then by the isolation of infected individuals and thoroughly scientific treatment, such diseases could be stamped out of the community. There is no reason why they should not be as readily subjected to social control as smallpox or other serious contagions.

Other proposals include a uniform national divorce law, and special courts of domestic relations. While it is true that the legal grounds for divorce vary widely from state to state, it is also true that the actual number of divorces granted by Nevada, for example, which is notorious for its easy standards, is extremely small in comparison with the total. In 1925 only 1,122 divorces were granted in that state. Moreover, had the Nevada laws been more strict, many of these divorces would have been secured in other states. In other words, it is by no means certain that a federal law would actually reduce the number of divorces. It could not be passed without the support of public sentiment; it would consequently have to be more liberal than the present laws of some states, even though more severe than those of

⁴³ For a careful study of the Wisconsin law, see Fred S. Hall, *Medical Certification for Marriage*, Russell Sage Foundation, 1925.

others. It may be objected also to a uniform divorce law that federal legislation is more difficult to alter, and hence less flexible or adjustable to changing social conditions.

An even stronger objection is the difficulty of so applying a federal statute as to make it harmonize with the conditions and the public opinion in various local communities. A too stringent federal law would be widely violated and brought into disrepute. One of the great advantages, in fact, of the American system of states is the possibility of thus adjusting legislation to locality. This also makes possible an enormous amount of social experimentation, different states being able to try different methods of solving the same problem. It would seem that increase in the divorce rate is likely to continue for some time, in spite of any legislation that may be enacted regarding it, because the social conditions producing it are still in full force and have not yet reached their climax. There is thus no "remedy." We may set alongside this the presumption that a large proportion of couples will achieve fairly stable unions in the absence of all legislation, because of psychic fixation and mutual satisfaction.

Much more can be said in favor of the special courts of domestic relations. Doubtless a large proportion of divorces is due to the inability of married couples to make the necessary physical and psychological adjustments. Under these circumstances temporary aggravations may lead to hasty separation and permanent severance of family relations. Such cases can frequently be smoothed out, marital bonds cemented anew, and mutual understanding even raised to a new level, under the kindly and judicial interest of a judge authorized to hear such cases in private and treat them according to their individual merits.

It may be laid down as a fundamental principle of legislation dealing with this and related matters that the law must take full account of popular opinion and changes in popular mores. The growth of wealth, leisure, diversity of opportunity for personal amusement, and a consciousness of individual worth and freedom will undoubtedly continue to operate in favor of easy divorce whenever the marriage relation becomes irksome for either party. Only recently, Sweden has passed a law making possible divorce by mutual consent; moreover, either party may sue for divorce on several grounds. There are many indications that we may be entering a period when divorce by mutual consent will become general.

It is for this reason that great significance attaches to the current agitation in favor of companionate marriages.⁴⁴ This proposal involves the contraction of marriage with the definite understanding that there shall be no offspring, at least during a trial period; and that the arrangement may be dissolved by mutual consent, or by the usual divorce proceedings, if one party does not consent. The proposal has the inestimable merit of recognizing the increasing likelihood of sexual irregularities, and of meeting this by cultivating the idea of early marriage. This is obviously a dignified procedure, in harmony with the best ideals of health, physical and mental, and social decency. It has the merit also of recognizing that marriage is necessarily a venture, requiring mutuality of interests and purpose, and a period of adjustment. It also provides an easy escape from an unwise or unhappy union, without the hypocrisy and often salacious publicity attending court proceedings. The one serious objection to the proposal is that it seems likely to cultivate a light-hearted attitude toward marriage. The importance of marriage would seem to require that it be approached with a definite determination to make a success of it, if possible, rather than with the feeling that success is not important since dissolution is easy. It seems probable also that the companionate idea would promote childlessness. It is a form of marriage and not of the family, and hence from the normal social view, a biological failure. In any case, the proposal is a genuine expression of the spirit of the times. Thousands of couples already approach it, and social conditions seem likely to make it more, rather than less, popular. It is best viewed as a symptom; it is not a remedy.

CULTURE TRAITS AFFECTING THE MODERN FAMILY

Complexity of Social Analysis. We have seen in an earlier chapter that there is an intimate and ceaseless interaction among different features of a given social system. When one feature changes other features must change in order to establish a harmony of parts. The folkways "all answer their several purposes with less friction and antagonism when they coöperate and support each other. The forms of industry, the forms of the family, the notions of property, the constructions of rights, and the types

⁴⁴ Ben B. Lindsay and Wainright Evans, *Companionate Marriage*, Boni and Liveright, 1927, Chaps. vii, viii, and ix.

of religion show the strain of consistency with each other through the whole history of civilization.”⁴⁵ It is from this strain toward consistency that spring the conflicts of opinions and classes, and endless discussion of programs and policies.

Because of this complex interaction of elements, we do not know just where or how a social transformation starts. The idealistic school of social philosophers holds that great changes are due to the promulgation of new ideas and ideals; they would give an ideological interpretation of the rise of democracy, the growth of individualism, and the present demands by women for sex freedom and equality. A more realistic school finds that new ideas arise from the social conditions and derive their force therefrom. They would find the rise of democratic ideas in the economic conditions of the medieval cities, the growth of trade, and the general social ferment following the discovery of America and the commercial revolution. There is truth in both viewpoints; the ideas and standards of judgment and value which men hold react on the development of their economic institutions; but the latter react even more powerfully on the former. In view of the fact that the satisfaction of material wants is so fundamental and persistent, it would seem reasonable to hold that the course of evolution of material culture is the most important influence affecting the evolution of a culture as a whole. There is a continual strain toward consistency of all the folkways with the ways in which men make their living. Consequently, in the following paragraphs on influences affecting the family, we attach primary importance to the rise and development of the capitalist economy.

Moreover, we should not lose sight of the fact that a given culture trait or complex does not exert its full force once and for all upon its first appearance. For example, the invention of the printing press nearly 500 years ago gave rise to the newspaper; therein the sixteen-year-old-flapper of to-day reads all about the romances of movie actresses, and thereby her ideas and ideals of marriage derived from her parental and religious training are deeply altered. Gutenberg is, therefore, exerting some influence on the present divorce rate.

We conclude that there are a multitude of social conditions affecting the modern family. It goes without saying that the

⁴⁵ W. G. Sumner, *Folkways*, Ginn and Co., 1906, pp. 5-6.

major of these are the basic features of our civilization. We have singled out five of them for special discussion, namely, the Capitalist System, Democratic Ideals, the Rise of Science, Urbanization, and Birth Control. There are doubtless others, but these help to give order to the analysis.

Rise and Expansion of the Capitalist System of Industry. Probably the most important of all factors here involved are those extraordinary transformations of society which have grown out of the industrial revolution. The growth of the factory system is indeed the basic event of modern times. It had its beginnings in the expansion of trade and of the use of money in the fifteenth, sixteenth, and seventeenth centuries. These gave rise to the new bourgeoisie, a trading and commercial class which grew in numbers and power in the cities. This class developed a new theory of liberty, individual rights, and governmental responsibility and control. These democratic and individualistic ideas affected not only government and trade, they reacted on religion and morals, and ultimately on the family in almost revolutionary ways. In the economic sphere they destroyed the system of medieval trade restriction and regulation and gave rise to the theories of economic liberalism, free competition, free contract, and the social benefits of nearly unrestrained exercise of self-interest. These changes came slowly at first, but, with the invention of the steam engine and other inventions of the Industrial Revolution, very rapidly became the dominating features of economic life.

With the final establishment of the factory system, all the major features of the capitalist social scheme were in operation. The significance of this system for the family is that, for the first time in our civilization, there was afforded women an increasing opportunity for independent employment outside of the household. The factory system has gradually absorbed an increasing number of those activities formerly carried on in the household, such as spinning, weaving, preserving of fruits and meats, bread making, butter making, carpet making, sewing, and clothing manufacture. In all social ranks, the economic value of women in the home was greatly reduced. Women have been both compelled and induced to seek work in increasing numbers in factories, shops, restaurants, stores, and offices. The importance of this movement is reflected in the fact that the number of females ten

years of age and over engaged in gainful occupations in the United States increased from 2,647,000 in 1880 to 8,549,000 in 1920. At the last census (1920), nearly 40 per cent of all young women, ages seventeen to twenty-four, inclusive, were engaged in such occupations. The proportion was smaller for older age groups, but 23 per cent of all married women were thus engaged. Here is a revolutionary change from the patriarchal family within whose carefully guarded precincts our great-grandmothers spent dutiful and busy lives. It is even in sharp contrast with the rural family of to-day. In every type of domestic economy, with its economically independent or semi-independent family, women perforce spent their lives in a varied round of productive homework. In our commercialized manufacturing economy, millions of women are compelled to work for wages in order to contribute their share to the material maintenance of the family unit.

The net effect of this influx of women into gainful occupations has been the creation of a social situation in which women have the possibility of personal independence outside of marriage. Every phase of feminine emancipation is in some way dependent on this possibility of economic emancipation. Formerly, every girl necessarily looked forward either to marriage and therefore economic dependence upon her husband, or else to spinsterhood with the continuance of economic dependence upon her father or father's family. Now, for the first time in 2,000 years, any able-bodied woman has an alternative to marriage and motherhood. There is no surer principle in social organization than that those who are economically dependent shall occupy a position of inferior status as regards personal liberty. Consequently, the primary factor in the changing status of woman has been the achievement of this possibility of personal economic independence. While less than a third of all women fifteen years of age and over are actually engaged in gainful occupations, the possibility of such employment and its attendant economic independence is open to all. It is this situation which has enabled the women to make effective their demands, not merely for a more equal status within the family, but even for new political rights, for increased property rights, and for general freedom from male domination.

From this point of view, it is not a little amusing to note the extreme wrath with which stalwart defenders of the present social order greet any proposals by social radicals for changes in

marriage and family customs. It may be unequivocally asserted that the capitalist system has done more to dissolve the traditional father-right and patriarchal type of family than any other influences which have affected the evolution of culture in western Europe for several thousand years. In previous pages we have frequently noted that the mode of economic life deeply affects the family institution. The transformations of our own time are a most striking illustration. Furthermore, it does not seem probable that there can be a return to the traditional type of family, unless some equally revolutionary economic change should occur. If, for example, the distribution of electric power should, as Henry Ford and others have dreamed it might, bring about a restoration of home industries, the family might again become the highly integrated economic unit it once was. But this is, at present prospects, not very probable.

Democratic Ideals of Liberty and Equality. The achievement of economic independence made it possible for women to claim for themselves those rights and prerogatives which were at the basis of the modern democratic movement. When our forefathers stated that all men are created free, or free and equal, they did not intend to include the feminine sex. Nevertheless, the assertion was made in broad general terms, so that women could claim its benefits, once they achieved sufficient economic independence to give some force and vigor to their claims for political rights and privileges. It was the achievement of economic freedom in a democratic society which has led to the modern woman suffrage movement and other manifestations of an increasing individualism on the part of women, such as an increase in property rights and equality with husbands in the control and guardianship of children and in the sharing and expenditure of income. These conditions have also resulted in the increasing resort to law, both for the purpose of securing additional rights, and for the purpose of enforcing not merely traditional rights but more equitable treatment. An increase in divorce has been one of the results.

But such statements by no means begin to exhaust the full significance of democratic individualism. These ideas, carried into the field of ethics, gave rise to the utilitarian philosophy, which set up individual welfare and happiness as legitimate, if not ultimate, ends. Here was a basis for the ethical emancipation of the individual from the traditional scheme of rights and duties,

whereby he had been subordinated to church and state. It was assumed that there was little or no conflict between the interests of society and the interests of the individual, so that individuals, in seeking their own happiness and welfare, would confer maximum benefits on society at large. So far as the family is concerned there was much truth in this view, *so long as individuals were driven into marriage by their sex impulses, women had no career but motherhood, and offspring almost inevitably followed marriage.* Under these conditions the latent parental attitudes were readily molded by religion and public sentiment, so as to preserve a stable and fertile type of marriage, a type highly useful in nations requiring workers and soldiers in abundance. But, in such a family, woman was not only in a position of subordination, she was denied the free moral determination which men had in larger degree, and which both sexes were assumed to have in ethical theory. Both sexes were, in fact, entrapped by their physiological needs into the social status of parenthood, which they might not have assumed willingly; and they were held by both law and sentiment in a permanency of marital bonds, which not infrequently amounted to domestic slavery, particularly for women. This type of institution still continues in a large part of the population, but another large part has achieved the individual freedom implicit in democratic and utilitarian theory. We have seen above that the factory system enables women to achieve economic independence; we shall see below that birth control enables them to achieve voluntary motherhood.

In still another respect the ideals related to democratic individualism deeply affected modern marital customs and the family. They gave free scope to the romantic element. Two aspects of this are important. There is first, the custom of giving young people free and untrammelled choice of mates. In a caste society, marriages are necessarily restricted, in the main, to class lines and are, as a rule, influenced by property and political considerations. These influences have by no means disappeared, but both theory and practice permit the formation of unions across class lines and without regard to practical considerations. This means, secondly, that romantic love has come to be considered the *sine qua non* of matrimony. This is an emotional attitude difficult to define, but compounded of sexual attraction and psychic idealizations, the latter probably due to the former. In its absence, the

modern view holds marriage to be but licensed prostitution; in its presence, the extreme modernists hold that sexual relations are sanctified, whether or not preceded by formal civil or religious ceremony.

There can be little doubt that the evolution of this love basis for marriage is a distinct advance over any type of marriage by arrangement, so far as the physical and psychic well-being of the parties involved is concerned. But romantic love is a delicate flower and easily crushed when its first fragrance has been exhausted and the prosaic problems of economic success in the rough-and-tumble affairs of the world have destroyed illusions and brought on the temper and indifference due to weariness and discouragement. Moreover, the essential ingredient of sexual attraction in romantic love not infrequently proves unduly large, so that with satiety romance abruptly ends. Many hasty marriages soon shipwreck and require the remedy of divorce. It is here that instruction and wise counsel can greatly increase the sum of human happiness.

As Professor Lester F. Ward ⁴⁶ pointed out, we may distinguish several types of love. There is first, natural love, another name for sex instinct or passion. But the impulse is strong in both sexes and gives rise among all peoples to a greater or smaller amount of sexual irregularity. Moreover, so powerful is natural love as a physical drive and psychic motivation that every society must provide for its rather full satisfaction; and so must every marriage. One need not accept all the vagaries of Freud to recognize that he has made an important contribution to human psychology in showing that abnormalities of mental behavior are often due to frustrations of the natural love impulses. As Ward says: "The purity and nobility of natural love have been perceived by all truly great minds, but few have had the courage to speak a word in favor of its redemption from the false and hypocritical odium that a pharisaical world seeks to cast upon it." ⁴⁷ All marriage systems are schemes for its regulation. All primitive societies and every type of family, being kinship groupings, are based upon it.

Romantic love is a psychic accompaniment of natural love, which is its physiological basis. It has doubtless existed among

⁴⁶ Lester F. Ward, *Pure Sociology*, The Macmillan Co., 2d ed., 1907, pp. 377 *et seq.*

⁴⁷ *Ibid.*, p. 386.

all peoples; the extent of its recognition by the Greeks and Romans is a matter of dispute; but it became a fully and consciously recognized aspect of the mating instinct among the peoples of western Europe some time during the Middle Ages. It was probably advanced by the age of chivalry, but its full development awaited the freedom of women. It has added a chaste tenderness to natural love which deeply affects its psychic accompaniments; it adds depth and breadth to the attraction of the sexes; it produces a state of psychic fixation highly favorable to monogamous unions; and lays an emotional basis for mutual adjustment and understanding which makes possible a lifelong mutuality of affection and tender regard.

But, as noted above, it is delicate and evanescent. It bears its proper fruit only when transformed into what Ward calls conjugal love. This is the love of husband and wife. Needless to say such transformation does not always occur. It is often said that marriage is the death of love, but this is because love is thought of only in the romantic sense. At the same time it may be said that so tempestuous a sentiment as romantic love could not advantageously continue indefinitely. The romantic attitude is all happiness or all despair. It causes too great a disturbance of the emotional life to make it consonant with the humdrum activities of daily routine. But the romance of "falling in love" lays the basis for the deep mutual interest and emotional attachments which make possible psychic adjustment to the conjugal relations. Conjugal love is less expressive but "more durable, possessing greater volume, greater utility, more real worth." Good will and conscious effort are required to maintain the essential mutuality of concern upon which conjugal affection rests. Every marriage involves a period of apprenticeship during which psychic bonds are usually deepened by common effort and mutual sacrifice. The birth of offspring also greatly increases mutual understanding and sympathy and gives to the union new purpose and fresh goals of achievement.

Finally, there is still another way in which democratic individualism has affected family stability and the evolution of sex mores, namely, through the development of the single standard of morality. This is a direct and current result of the achievement by women of economic emancipation and a recognition of equality of rights. This has had the double effect of decreasing the sex freedom of

men and increasing that of women. Certain rather extreme feminists advance the claim that the sexual needs of women equal those of men. This is extremely doubtful, exception being made of individual cases. Nevertheless, psychological study has shown the tremendous importance for both physical and mental normality of some kind of natural sex adjustment for mature persons of both sexes. At the same time, various social conditions have produced in western nations, particularly in all metropolitan areas, a marked surplus of women. Since, in actual practice, morality is irresistibly affected by pertinent social conditions, these factors have resulted in a reconsideration of the love rights of the heretofore suppressed sex. Moreover, as we note in a later paragraph, the development of urban conditions of life has given opportunity for greater freedom of sex expression by women, so that temporary and experimental unions are more frequent than they once were.⁴⁸

It thus appears that democratic individualism has greatly increased the perils of matrimonial unions, at the same time that it has greatly elevated them in inherent moral worth and volume of psychic satisfactions. We approach a time apparently when every marriage must bring genuine satisfaction to both parties, and thus be a union in fact as well as law. We may hope that the development of psychology, conscious study of the basic elements in conjugal love, and more frank instruction in the problems of marital adjustment, will also make marriages more frequently permanent.

Rise of Science and Decline of Religious Orthodoxy. It is obvious that, if the ideals and attitudes of medieval Christianity had continued to function, women would have found it impossible to break away from the yoke of the patriarchal family. Under those ideals they were not only looked upon as inferior but were mythically branded as a primary source of evil. The highest of those ideals was that of complete celibacy, of complete dominance of the spiritual over the physical, and of the maintenance of perfect physical purity through celibacy and monasticism. Viewing the sex relation as inherently sinful, Christian thought looked upon marriage as a necessary evil. Religious authority, therefore, surrounded marriage, female chastity, and the status of woman with awesome and dreadful taboos which

⁴⁸ See Frieda Kirchwey, Ed., *Our Changing Morality*, A. and C. Boni, 1924.

greatly restricted the expression of the potentialities of feminine human nature in many directions. The decline of religious orthodoxy has, therefore, served to release women from traditional psycho-social restraints, at the same time that she has acquired material resources and other conditions favorable to self-assertion. If we compare various sections of our own country, we see that both Catholic and orthodox Protestant communities have relatively low rates of divorce. Associated therewith is less attention to the higher education of women and a narrower range of feminine employments than in the less orthodox sections.

The decline in dogmatic theology was a consequence of social changes already noted. One result was that marriage ceased to be a sacrament and became a contract. It was an agreement involving rights as well as duties and, because entered into voluntarily, it was capable of dissolution for cause. In an era of democratic individualism, it became increasingly difficult to induce individuals to continue their marital bonds on the ground that the family is a sacred institution and should be preserved even at individual sacrifice. On the contrary, public sentiment has supported the dissolution of marriage ties when the happiness and welfare of the parties involved seemed to require it. The Catholic Church has steadfastly adhered to its traditional position that marriage is a sacrament, that it is indissoluble because made in heaven. Protestant sects have occupied positions more or less removed from the Catholic, but have uniformly opposed the increasing freedom of divorce; some have, like the Catholic Church, refused to remarry divorced persons. These ecclesiastical attitudes may have reduced the number of divorces, but we do not know whether they have reduced the number of separations. A special study of the data of the court of domestic relations at Chicago showed that desertions among Catholics were surprisingly numerous in view of the attitude of that church.⁴⁹

Urbanization. Closely related to industrialism as a factor in transforming the whole social environment of the family is urbanization. One of the most striking phenomena in the evolution of western culture, especially since 1850, has been the growth of cities. All told, many scores of millions of people now live in the great metropolitan and urban centers, where the conditions of life are in almost every respect fundamentally different from what

⁴⁹ E. R. Mowrer, *Family Disorganization*, Univ. of Chicago Press, 1927.

they were during all the preceding centuries. It is in the metropolitan center that are concentrated all the forces acting most powerfully upon the family. Young women flock to the city in even larger proportion than young men, probably because the opportunities for employment are more numerous and diverse. There are, as a rule, larger proportions of unmarried of both sexes among urban than among rural populations. This is in part due to the larger numbers of young men and women drawn to cities. It is in the urban community that opportunities for feminine freedom and self-expression in art, literature, music, and varied employments are peculiarly abundant. It is there that religious orthodoxy and other forms of community restraint exert the least influence. It is there that is felt the full force of our scientific and mechanical age in the dissolution of ancient superstitions and taboos. The Mother Grundy and gossipy restraints of small town life are absent. The apartment house and its related institutions create a social environment which enable the individual very largely to escape community control. The scope of personal freedom is greatly enlarged, because a person's life can be known at all intimately by only a few persons. Small groups can thus virtually establish their own codes of sexual morals.

On account of its stimulating atmosphere, its unlimited opportunities for personal enjoyment, and the high cost of living, urban conditions have favored a sharp reduction in the number of offspring. It is, thus, in the urban communities that the semi-religious, semi-patriarchal family of our grandfathers has undergone the greatest disintegration. It is there that families are smallest and home ties weakest. The individualized family cottage gives place to the apartment house and apartment hotel. In the maelstrom of urban bustle and fury, the home, as the place in which center the interests and activities of husband and wife and more or less numerous progeny, is well-nigh dissolved, when it does not disappear altogether. Multitudes of individuals marry with no intention of having children, or form more or less temporary companionships as matters of personal convenience, with complete indifference to the future of the race and the nation.

It is in the city, in fact, that we see the culmination of all the new forces affecting domestic institutions. It is there that the

strain toward consistency between traditional mores and new conditions is greatest. Experimentation is an inevitable result. We may in time evolve a new set of mores better adapted to urban conditions. Meanwhile, we see in the present upheaval an example of what Ogburn ⁵⁰ has aptly called "cultural lag," or the failure of all parts of a given culture to change at the same rate. The traditional family is that of the rural community and the village. It is in its size and its moral and religious aspects adapted to the "face to face relations" of the neighborhood. Time and social experience have not yet been adequate to bring about a form of marital and family customs which are at once in harmony with the demands of the city environment and at the same time such as to guarantee both individual well-being and racial perpetuation. Nor is it certain that both of these more or less contradictory ends can be attained.

The Spread of Birth Control. One of the primary ways in which modern science has affected the status of woman and the character of the family is through the development of effective measures for regulating the number of offspring. This achievement is in some respects the most transforming of all influences affecting modern society. It is only in consequence of it that woman has been able to take advantage of the benefits of the industrial revolution, modern democracy, and the decline of religious orthodoxy. Had she not been able to reduce the size of the family she would not have been able to take advantage of the enlarged freedom which modern industry and social thought accord her.

It is this also which is serving most powerfully to undermine the traditional standards of sexual morality. Having been freed from traditional mystical restraints, the most important remaining obstacles to an increasing freedom of sex relations have been the danger of venereal infection and the danger of conception. There is ground for supposing that the former evil will be gradually brought under increasing control. Already prophylaxis has been highly perfected. Birth control enormously minimizes the second danger. It is in consequence of these transformations that we find ourselves to-day in the midst of such extensive agitation over sex matters. The double standard of morality was based on two facts. There was, first, the historic position of the sexes

⁵⁰ *Social Change*, Part IV.

in the patriarchal family. The male was dominant; the family was viewed as "his." He insisted on female virginity and was able to enforce his view because matrimony was the only sphere of feminine activity. There was, secondly, the danger that feminine unchastity would be followed by conception, loss of caste, and decline of value in the marriage market. Both these facts tend now to become historical, though they are still of great importance. Nevertheless, traditional mores are disintegrating; the element of fear is sharply reduced; and women are claiming equal rights to sexual pleasures. Such a situation cannot be met by violent insistence on outworn taboos. It calls for frankness and high-minded deliberation. It requires the development of a more rational morality based on more complete and accurate knowledge of individual physical and mental health and of social needs. Such seems now in process of formation.⁵¹

It is, however, easy to exaggerate the extent to which the perfection of birth control will alter the sex mores. It will doubtless seem more disintegrating to the generations experiencing its first full effects than after it has become an accepted and normal feature of ethical concepts. It has become a necessity in view of the danger of overpopulation. It has the inestimable advantage of making possible the preservation of the health of women, and of limiting offspring to the number adjusted to the economic circumstances of parents. It should make possible a stronger race, both by enabling parents to space their children suitably, and by reducing the multiplication of worthless strains. Moreover, as we have repeatedly insisted, woman becomes dependent when she becomes a mother. So long then as the individualized family remains, it seems likely that husbands will claim a sort of property right in their wives. At the same time, the improved social status of woman seems certain to result in a more complete mutuality of rights and duties between the sexes.

— SOME IMPORTANT PROBLEMS OF THE MODERN FAMILY

Size of Family. As often intimated above, the number of children has an important bearing on the importance of the family, and on the status of parents, particularly of wives. Recent

⁵¹ See Harold Cox, *The Population Problem*, Jonathan Cape, 1922, Chap. vi; Dora Russell, *Hypatia or Woman and Knowledge*, and A. M. Ludovici, *Lysistrata or Woman's Future and Future Woman*, E. P. Dutton and Co., 1925.

investigation has shown that the size of the family tends to be larger among civilized peoples than among primitives.⁵² There is a greater quantity and better quality of food. This increases bodily health and energy. The reproductive period is lengthened, while the interval between births is shortened. The civilized mother is, therefore, capable of fully twice as many births as her savage prototype.

In view of these facts the recent decline in the birth rate, is, like divorce, a fundamental symptom of the social forces now affecting the family. A similar decline occurred among the upper classes in Rome during the later years of the Republic and the Empire. Such decline has become an essential condition for the maintenance of high standards of living. It is not the decline that is objectionable, but rather the differential manner in which it has occurred. It is estimated that the old American stock has been gradually diminishing in New England since about 1870. Its proportion has, therefore, become rapidly less. One result is that the New England population is now being recruited almost entirely from the Irish, French-Canadian, Polish, Italian, and other immigrant stocks, largely of Catholic faith. Moreover, what has occurred in New England promises to occur in the rest of the country in the coming generations. The educated, successful, cultured, and highly individualized classes who represent the better strains in the population, are the very ones which are failing to reproduce themselves. The same social conditions are, however, affecting all classes; even the children of prolific Polish, Italian, and other immigrant parents prefer better clothes, household comforts, and automobiles to numerous progeny. A fundamental factor here is the unwillingness of the women of these classes to undergo the sacrifices involved in rearing a considerable family. A small family or none at all increases their ease and freedom in many ways, and tends also to create those social attitudes and opinions of what is suitable and proper, which in turn militate against offspring.

A central problem of the modern family is, therefore, the question whether the status of the mother can be made so desirable and attractive that it will easily occupy a position of first importance in the minds of the vast majority of the more able, energetic, ambitious, and cultivated members of the feminine sex.

⁵² A. M. Carr-Saunders, *The Population Problem*, Clarendon Press, 1922.

Numerous proposals have been made to meet this situation. Since economic considerations are doubtless primary factors, the most frequent suggestion is that of mothers' compensation. It is proposed to recognize motherhood as a distinctly meritorious service to the state. Closely allied is the system which has grown up in France and Belgium since the war, known as the "family allowance" system. A group of employers provide a fund out of which supplements to the wages of their employes are paid according to the number of their children. The most pertinent objection to all such schemes is the danger that they will result in dysgenic reproduction. It will be utterly impossible for the state to pay to parents enough to offset the increased cost of additions to their families. Such payments would necessarily have to be much larger for persons living on a high standard than for those living on a low standard. It would result that whatever payment or allowance was made for additional children would appeal more strongly to families of the lower income groups. There is much evidence to indicate that such parents are, on an average, inferior in both physique and intelligence to the general run of the population.

The most logical proposal that has yet been made is that a certain percentage addition to the income of the father be made for each child beyond the second.⁵³ It would thus be assumed that parents normally would be willing, from natural desire, to have at least two children, but that, if they are to be induced to have more than two, the community as a whole must assume a part of the burden. The principle of making proportionate additions to income would mean that a father with an income of \$6,000 per year would receive three times as much for an addition to the family as one with an income of only \$2,000. This proposal is logical, in that it recognizes the average superior worth of children of the more successful classes, and also the greater expense of rearing children on the higher levels. Nevertheless, in a democratic society, it has so much of aristocratic flavor that it is very unlikely to receive the necessary popular approval to put it into operation.

There are, nevertheless, various grounds for an optimistic view. In spite of the strong tendencies of the last two genera-

⁵³ H. W. Siemens, *Race Hygiene and Heredity*, trans. by Lewellys F. Barker, D. Appleton and Co., 1924, Chap. x.

tions inducing women to seek independent careers, it may still be asserted without fear of contradiction that most girls look forward to marriage and motherhood as their normal future. Motherhood is, for all but a few, advantageous both physiologically and socially. It seems to prolong life; and society recognizes it as vital to its welfare. Moreover, the increasing mechanization of household appliances is gradually reducing the drudgery of housekeeping, while the diversified knowledge of hygiene and sanitation, food values, clothing and furniture values, household decoration, child psychology, and budgetary management are elevating it to a plane of dignity and expertness. Further, it seems possible to assert that there has been an increasing social prestige attaching to motherhood, and an increasing tendency on the part of the community to recognize its inestimable value for the future welfare of the state. If such tendencies continue, it would mean that, in the future, society would regard the mother of several healthy and intelligent offspring as a woman of superior social worth. This in itself would constitute a tremendous encouragement on the part of educated women to undertake the responsibilities of parenthood.

The Socialization of Child Rearing. The increasing integration of social life, together with the meritorious desire of a democratic community to extend the blessings of civilization to all classes, has led to an increased oversight by society of the physical and mental environment of children. The activities of parents have been supplemented by various agencies, such as the kindergarten, day nurseries, nursery schools, public health activities, district nursing, midday meals at public schools, and the provision for recreational and other needs and services by the community. All these are designed to reduce infant mortality, increase child health, and otherwise insure every infant born the best possible start in life. These agencies may tend to some extent to reduce the sense of parental responsibility, though this is doubtful. They have seldom gone far enough as yet to remove from parents the major responsibility for the feeding, clothing, education, and training of their own offspring. A thoroughly communistic society would, of course, extend these functions and set up all sorts of agencies to perform the duties and assume the responsibilities now imposed upon parents. Moreover, there can be little doubt that society now possesses the resources in wealth and knowledge

to provide for every child, from infancy onward, better surroundings and better training than the vast majority will receive in their own homes. But such an idea has more imaginative than practical value.

It is not at all probable, moreover, that our own society will go to such lengths. Much recent legislation and the extension of public activities, however, indicate that society is more interested in surrounding its future citizens with the best possible conditions than it is in enforcing upon parents time-honored burdens. But it would seem, in the light of past experience, that no social change could be so destructive of the moral fiber of the population as the obliteration of parental responsibility for the rearing of their own offspring. This now constitutes the major driving force to personal ambition for a large part of the community. The desire to marry steadies behavior and incites to effort before marriage, while the addition of family responsibilities makes a man a better workman, a more thoughtful citizen, a better neighbor.

Home versus Career. The enlargement of economic opportunity and the ideals of democratic individualism have been the main factors in the feminist movement. They have led to the enormous expansion of individual opportunities and professional training for women, and thus led to the idea of careers for women outside the home. This has precipitated a sharp conflict in the mores of marriage and the family. It has thus far been extremely difficult to reconcile careers for women with the established order. Careers have been opposed by the masculine attitude of possession and the pride which men of the middle class take in being able to support their wives in ease. This involves an often obnoxious parasitism and an enormous social wastage through the failure of society to develop and utilize in socially constructive ways the energies and talents of able and trained women.⁵⁴ It also leads, not infrequently, to a feeling of frustration and discontent on the part of such women, which destroys personal efficiency and the finer values of the domestic relation.⁵⁵ Women who have foregone matrimony in order to secure the advantages of the larger freedom and personal development which come

⁵⁴ See Lorine Pruette, *Woman and Leisure*, E. P. Dutton and Co., 1924, Chaps. vi and vii; and Olive Schreiner, *Woman and Labor*, F. A. Stokes Co., 1911, Chaps. iii and iv.

⁵⁵ See Dr. A. Myerson, *The Nervous Housewife*, Little, Brown, and Co., 1920.

from professional and semi-professional activity have paid an often bitter price in the thwarting of the natural desires of sex and motherhood.

There is thus a deep-seated conflict between the rightful claims of educated women for larger opportunities of personal development, broader experience, and wider usefulness and the traditional mores. It is a conflict by no means yet resolved, and perhaps one that in the nature of the case cannot be, except in individual cases. The fact of motherhood disrupts professional activity; and it enormously increases the economic value and the social worth of the mother in her own household. Social conditions often prevent her from finding a congenial occupation where the income is larger than the cost of household substitutes. Small children stand in special need of expert care. Coöperative housekeeping arrangements have proven a partial answer to such a situation, but it is still a problem to be solved by each couple individually. No doubt the vast majority of women, even of the self-conscious classes, will find lives of usefulness in aiding their husbands and in caring for their children. A large part of feminine unrest has been due to a feeling of inferiority and a desire for proper social and familial recognition. Once they have demonstrated their abilities to take care of themselves and thus made marriage a true partnership, they may acquire a renewed zest for the perfection of domestic institutions.⁵⁵

Conclusion. Two generations ago Herbert Spencer declared that the basic and primary requirement of the family, to which all others are necessarily subordinated, is the maintenance of the species. The achievement of this end may entail considerable sacrifices on the part of parents, in order that a sufficient number of offspring may be born, reared, and trained. Here is one case where the welfare of the species, biologically viewed, may be antagonistic to the welfare of the members of the species, viewed as individuals.

He then pointed out that the evolution of reproductive modes as we ascend from amoeba to man has entailed a diminishing sacrifice on the part of the reproducing individuals. Even on the highest plane, however, the life of the individual cannot, in the general case, be considered as separate from, or superior to,

⁵⁵ See for an excellent discussion, Willystine Goodsell, *Problems of the Family*, The Century Co., 1928. Chaps. xvi and xvii.

the life of the species. The latter is destined to go on, and if the perpetuation of the race cannot be reconciled to or harmonized with the highest forms of individual welfare and happiness, then it must be assumed that the maintenance of the species inevitably entails more or less sacrifice of individual welfare. Much of the modern rebellion on the part of women is activated by a desire to escape the limitations which child-bearing inevitably places upon them.

Spencer then went on to point out that the highest form of the family would be that in which a sufficient number of offspring are born to maintain the species, and are reared so as to become as highly developed individuals as the social medium permits, all with the least sacrifice on the part of parents. This ideal is realized under the following conditions: (1) a prolongation of the period which precedes reproduction; (2) a decrease in the number of children born and reared to such a number as will maintain the population, or permit of a slight increase; (3) an increase in the pleasure of caring for children; (4) a lengthening of the period that follows the cessation of reproduction. It is clear that these conditions are realized in a fair proportion of modern marriages. Individuals now do not commonly marry until growth is completed and full physical vigor achieved. This is highly important in the case of women; the quick loss of youth and beauty by the women of lower cultures is proverbial. Large families are no longer necessary; they are even becoming objectionable; an average of about three per marriage is sufficient to maintain a stationary population. The enormous waste of wealth and effort, and the appalling sacrifices of parents of past generations, particularly mothers, in giving birth to numerous offspring, of whom a large proportion died at early ages, have been brought to an end. Moreover, birth control makes possible early marriage with postponement of parenthood. Finally, as Spencer indicated, the great increase in the average length of life has prolonged the period of health, usefulness, and enjoyment to many years after the cessation of reproduction. While, therefore, we must observe that the rearing of a family still entails upon parents a considerable amount of sacrifice, a much greater amount than many individuals are willing to undergo, the progress of the last few generations points to the possibility of a social arrangement in which the reproduction of the race may be almost, if not quite completely, reconciled with the life interests and values of parents.

SUMMARY

1. We find both marriage and the family rooted in nature, but erected by society into institutions. Marriage is primarily a regulation of the sex-instinct; the family presumes both sex and parental relations.

2. The functions of the family are protective, economic, educational, moral, religious, social, and even political. In our society its functions have been greatly reduced as compared with even two generations ago.

3. There are four forms of marital relations, but some approach to monogamy, more or less loose and temporary, seems to be the usual type. Some provision for sex variety has been usual.

4. The most usual method of securing mates has been purchase. Closely associated are inheritance and exchange. Romantic attachments are also a part of the life of every society. Women also frequently take the initiative, and otherwise express preference.

5. Evidences as to the first form of marriage are differently interpreted. Male jealousy and differences in strength and aggressiveness would seem to make impossible an original state of group communism. The most probable theory is that the single-pair marriage and family existed from the first, associated with polygyny as a less frequent form.

6. The rule of exogamy seems to have resulted not from an instinctive repugnance, but from the lesser attraction of childhood mates. The custom of finding mates outside the family circle led to a rule requiring it. This theory is, however, far from certain.

7. The sexes do not seem to be equal, either physically or mentally, though average differences are small with much overlapping of individual variations. The greater frequency of masculine genius seems to be due to a difference in brain power, which may be accounted for by the greater specialization of woman for reproduction. There is thus a physiological basis for some degree of difference in social activities and family functions. The sexes are complementary and their services equally essential.

8. Some provision for divorce is nearly universal. In our own times instability of marriage has enormously increased, because the dominant culture complexes are in conflict with family and marital tradition. This is not an unmixed evil, for it signifies

a better status for woman both within and without the family, and the elevation of marital relations to a plane of greater mutuality.

9. The forces affecting the modern family are capitalism, individualism, rationalism, urbanism, and birth control. It is nearly certain that their full force has not yet been exerted and that the future will show a continuance and spread of recent tendencies.

10. The combination of family and career does not seem possible for the vast majority of educated and trained women. There is some indication, however, that the improved status of motherhood may make that itself a more attractive career. The rapidly advancing knowledge of child hygiene and psychology and of household management in general, together with the higher standards of personality development required by modern life, tends to give the mother's position professional values.

11. On the whole, the modern family is an advance over its predecessor in that it still serves racial needs, for the most part, with less sacrifice of parents, especially mothers. Marriage becomes a partnership, involving equal rights and duties, between persons whose functions have equal social value, and deserve equal esteem.

12. We are in an experimental age. With fair-minded discussion this should lead to fresh insight and ultimate enhancement of individual welfare without destruction of the social values necessary to the life of the race. To this end conscious preparation for marriage and cultivation of those ideals which experience proves advantageous may contribute.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. Study the division of labor between the sexes in primitive society.
2. What are the relative merits of polyandry, polygyny, and monogamy? Which fits our conditions best? Is it desirable to have only one legal form?
3. Make a more thorough study of the theories regarding primitive group marriage.
4. At which levels of our society do women have the greatest freedom in marital matters?
5. What are the spheres of activity in which historic women have achieved fame?
6. Do modern tendencies point to a disappearance of permanent monogamy as the normal type of marriage?

7. Would it be advantageous for society further to extend its care of children after they are eighteen months old, so as virtually to relieve mothers of them during the daytime?

8. If women become quite independent economically and other bonds weaken, so that mutual affection becomes the only bond of union, can this be made strong enough to prevent frequent divorce and remarriage?

9. From the standpoint of social values, what is the difference between a companionate without marriage and companionate marriage?

10. Can civilization destroy the family without destroying itself?

11. What are the arguments for and against easier divorce? Do you favor divorce by mutual consent? How are children disposed of in such cases?

12. Draw up a code of rules for sex behavior, marriage, and the family, which satisfies the requirements of society for an adequate number of offspring and is also in harmony with the needs and maximum life satisfactions of the individual. Can social needs be fully met without some individual sacrifice?

13. Why do many men not wish their wives to work away from home? What are the consequences?

14. Is prostitution a necessary culture trait?

15. Is there a parallel between present tendencies in our society and those of the Roman Empire as regards marriage?

SUGGESTED READINGS

BUSHEE: *Principles of Sociology*, Chap. 18, pp. 252-273.

GOODSELL: *A History of the Family as a Social and Educational Institution*, Chap. 14, pp. 497-551.

—: *Problems of the Family*, Chaps. 22, 23, and 24, pp. 398-457.

LICHTENBERGER: *Divorce; A Study in Social Causation*, Chaps. 10, 11, and 12, pp. 151-199.

LOWIE: *Primitive Society*, Chaps. 4 and 8, pp. 63-79 and 186-204.

SUMNER: *Folkways*, Chaps. 9, 10, and 11, pp. 342-478.

WESTERMARCK: *A Short History of Marriage*, Chaps. 8, 9, and 10, pp. 184-275.

ADDITIONAL SELECTED REFERENCES

COOLIDGE: *Why Women Are So*.

KEY: *Love and Marriage*.

MOWRER: *Family Disorganization*.

POPENOE: *The Conservation of the Family*.

RICHMOND and HALL: *Child Marriages*.

WESTERMARCK: *History of Human Marriage*, Vol. I, Chaps. 12, 13, 14, and 15, pp. 418-533; Vol. II, Chaps. 19 and 20, pp. 82-239; Vol. III, Chap. 31, pp. 223-266.

CHAPTER XIV

EVOLUTION OF SOCIAL ORGANIZATION AND INTEGRATION

SOME GENERAL TRAITS OF SOCIAL EVOLUTION

The Problem. Like so many other things in nature, society did not have a definite time and place of origin. Like man it evolved. Just as it is difficult to draw a line between man and his prehuman ancestors, so it is difficult to draw the line between society and the presocial. Human society, in fact, came into existence along with man. It is impossible to think of one without the other. At the time prehuman physical types were being transformed into the definitely human, there came into operation in definitely human ways association, communication, deference to leadership and authority, tradition, and group sentiment. Social groupings on the primeval level are fundamentally genetic in nature, in that they grow out of kinship relations and serve the primary purposes of individual preservation and race perpetuation.

Even if, however, the members of such groups are blood relatives, they are individuals of varying interest and temperament. It is, on the other hand, a fact of profound significance that the primitive man is more completely merged in his group than is modern man. Self-consciousness is less highly developed, being held in check by an ever present sense of solidarity with and dependence upon the kinship group. This would seem to be a consequence of the frequent severity and brutality of the struggle for existence on lower levels of culture. Fear, ignorance, and fragile hold on life's necessities accentuate gregariousness. Diversity of individual interest, capacity, and temperament increases as the group enlarges and mounts in the cultural scale. This results in part from the broader biological base provided by a larger and more mixed population, and in part from the confidence of freedom born of surer command over the necessities of life. Nevertheless, the members of the group are held together as a unified whole. Each is largely self-centered, seeks personal ends and is moved

by personal desires and interests, and yet each is also fully aware of being a part of the larger whole which constitutes his society. Each is a center of energy and action, responds to many stimuli, and in turn seeks the response of others to his presence and personality; but, in consequence of the various social controls over individual behavior and the marvelous psychic powers of adjustment and accommodation possessed by man, all these self-seeking units so act that what we call social order and social unity are preserved. In spite of the apparently anarchic propulsions of a myriad individual wills, there persists social organization and integration.

In Chapter VIII we noted some of the psychic processes involved in social control, and it should be obvious that the forms and limits of social organization find their explanation in human psychology. Nevertheless, it is possible to study some of the structural arrangements taken by those comprehensive social groupings studied by the anthropologist and the historian under such terms as tribe and nation. The individual, whether savage or civilized, is born into a social structure that gives form and sets limits to his behavior. He necessarily thinks, feels, and acts in terms of his social setting. His sense of unity or social solidarity with other persons depends on the structure of the social relations into which he is born and their accompanying ideology. In the following paragraphs we seek to delineate the main outlines of the major social groupings, and to show some of their significance for the slow but apparently inevitable movement of humanity from tribal isolation toward world unity.

Primary Bases of Unity and Organization. As stated above, primitive social groups are in their major forms necessarily genetic in origin; they are natural results of the multiplication of the species. They are expansions of the family. They rest, therefore, primarily, on *kinship*. At the same time it can be shown that even the most elementary human group, the horde that wanders about in search of food, has a certain attachment to *territory*. This territorial basis of unity looms larger in the consciousness of a member of a modern state than does the fact of kinship, but in tribal society the importance of the two concepts is reversed.

There is a third basis of social organization, which likewise varies in importance at different times, namely, *social stratification*. This might equally well be called *caste*, *class*, or *status*. It

is a consequence of biological and social conditions giving rise to individual and class ascendancy. In some of the simplest groups, which consist of an individual family or two, we see the beginnings of individual ascendancy and of forceful authority in the power of the husband and father over wife and children. In a more complex society the differentiation is much more complex. Its significance is typified in the importance of chiefs, kings, nobles, commoners, and slaves. Stratification obviously varies much from society to society, but it is an essential feature of any social unity, and a very important key to the understanding of the social organization existing at any time and place.

Then, fourthly, there is *force*, or the communal power either to compel obedience or to punish infractions of custom and law. Here again the power of the male is a social prototype. In simply organized societies such power is held by the headman, or by the council of elders. We ordinarily think of the organized power of a community as being exerted through political agencies, and call the institution possessing it the *State*. While the traditional view is that the state arises only at a late stage of social development, anthropological study has shown that its roots and rudimentary forms are found in savage society. It is true, however, that a simple, homogeneous society, living a thoroughly stereotyped existence and firmly held by the bonds of age-old tradition and social habits, has little political or governmental machinery, while a complex society always finds need for numerous governmental agents. We shall see that physical force, in the forms of military conquest, exaction of tribute, forced labor, police power, and similar phenomena, has played a very fundamental rôle in the formation and maintenance of the large and heterogeneous societies in which civilization has reached high levels. One may also add that ancient civilizations decayed and empires fell to pieces when the force that organized and united them weakened.

But one must be careful in such a statement not to permit his thinking to become the victim of mere words. The physical force that has played a part in nation formation is merely the organized activity of a social group or class. Its vigor and effectiveness is, therefore, dependent on the unity, numbers, and skillful leadership of the group or class that exerts it, while its decay is merely a consequence of social conditions which have resulted in loss of unity and leaders in the governing class. There is thus no metaphysical

governing force, but only the authority of individuals and classes backed by organized police and military power. The force that figures in social organization is, therefore, closely associated with class or caste stratification. Once we leave the simple homogeneous groups composed of blood kindred and pass to the increasingly complex groups, we note not only the presence of class differences but also that greater privilege and power belongs to one class as compared with others. The upper class controls governmental machinery, including police and military power.

Finally, as a fifth basis of social integration, is the "*consciousness of kind*" or fellow feeling. This feeling arises spontaneously among those who share a common culture in any situation which brings them into contrast or conflict with persons of an alien culture. It is an expression of human gregariousness, and culminates in those sentiments often called "tribal instinct," but better viewed as patriotism. It is the sense of belonging integrally with the group for good or ill. This is the psychic or subjective aspect of those objective facts represented by kinship, territory, class, and force. It is the enduring basis of unity and an essential condition for social coöperation and efficiency. Organized military power often plays a necessary and far-reaching rôle in destroying social structures and reorganizing social relations on a new plan. It is, moreover, a constant necessity for the restraint and punishment of recalcitrant individuals. But it fails to establish an efficient social unity unless, for the vast majority of persons, it is superseded by a sense of psychic unity and loyalty.

It results from the accidents of birth that one finds himself in a certain kinship group, in a given territory, in a family with a certain traditional status, and subject to certain constituted authorities. It results also that one acquires those habits of thinking, feeling, and behaving which are expected of one in his social position. His emotional life is organized into those sentiments of loyalty, duty, reverence toward parents and kinfolk, territory, mores, gods, and the powers that be, so that the vast majority of the members of any community, from force of habit and sentiment, voluntarily of their own will and purpose conform to what is currently believed to be in the interest of social order. Thus, in last analysis, the existing type of social organization registers itself in the behavior patterns of the individual members. One may almost say that most men are governed by symbols and myths, be-

cause kin, territory, class, and organized physical force are all hallowed by more or less sacred myths that grow up with the group itself, and they are all duly represented by signs and symbols, titles, insignia, flags, crests, and shibboleths to which individuals render habitual and adjusted responses.

The Question of Stages. It is unnecessary to repeat what has been said with respect to the doctrine of unilateral social evolution. We know that the course of development of different societies has been different, because the factors operating in them have varied. Moreover, such development is, like all evolution, always continuous. There is no gap between one phase and the next. We now hear much said about "the unity of history," and it has been asserted that "all history is a seamless web." At the same time the historian finds it convenient, if not necessary as a working device, to study history by epochs or periods. Just as cultural contacts and diffusion and the continuity of time and territory give unity to history, so the force of tradition connects all social transformations in an unbroken continuity. Nevertheless, like the historian, the sociologist finds it convenient to distinguish different phases, or distinctive types, of social organization in the evolution from simple to complex.

Social evolution is much like the spreading branches of a great tree. Each major branch represents a more or less distinct social group or culture. Each tiny twig, representing an existing custom or institution, may be traced back along branch after branch to the main stem. There is here a great diversity springing from a common trunk. There is also a broad resemblance among all the twigs, since they are all human products, and a resemblance among the branches, since they are all borne by the same tree. There is, notwithstanding, a considerable diversity among and within them. Any sketch of social evolution must content itself, therefore, with indicating certain general, rather than universal, facts and some of the widely manifested, rather than universally manifested, phases.

In an earlier chapter we saw that the stages indicated by such terms as "Paleolithic" or "Iron" are far from uniform for different peoples, even as regards their material culture. Moreover, every type of material culture may be associated with varied types of family, morals, religion, and government. The same is true of other ways of designating stages, such as "matriarchal"

and "patriarchal," or those we adopt, "tribal," "feudal," and "national." While each of these terms draws attention to certain outstanding features of a social group, they may not tell us anything about other features. We are, however, entirely within the range of observable facts when we distinguish as successive stages, Tribalism, Feudalism, and Nationalism. These are stages through which has passed the evolution of all those peoples who have achieved a high civilization.

If now we relate these stages to the primary bases of unity above mentioned, we see that Tribalism is based very largely on kinship, Feudalism on class stratification, and Nationalism on territory. These bases are not, however, mutually exclusive. All of them exist, at least in rudimentary form, at every stage, as do also consciousness of kind and political force. The primeval familial group, or primal human horde, although intensively genetic, had some feeling of territorial possession and some differentiation of individual prestige on the basis of sex, age, skill, or prowess. In tribal society the kinship factor still appears preëminent, but the consciousness of common territory and of leaders and rulers deeply affect group cohesiveness and structure. In feudal society the outstanding principle of organization is class stratification. The régime of caste gives both status and function to the individual and stability and integration to the whole. It binds superior and inferior together in a mutual obligation of protection and service. At the same time kinship and class are more or less closely associated, while the territorial basis of unity is more pronounced than under tribalism.

Finally, the national society, such as our own, is organized on the basis of territory, with town, county, province or state, and nation as the more and more inclusive units. There is, however, also a more or less well-defined hierarchy of classes marked off by wealth and occupation. In such societies the sense of kinship plays its rôle not only through the family, but also through the sentiments of race solidarity and superiority. We may conclude not only that the primary bases of group organization are present at all times, but that their relative prominence differentiates the stages or types of social organization one from another.

From Simple to Complex Relations. If we contemplate the changes occurring in societies ranging from primitive to advanced, we note a great increase in the number and variety of activities and

relations of individuals. The most simple human groups are small aggregations of independent families, each looking out for itself. They live in very barren environments, into which they seem to have been driven by the pressure of stronger races. They necessarily live in tiny groups because of the scarcity of food. Where food is more abundant, numbers are greater and social organization takes on new aspects. Group contacts, and hence conflicts, are more numerous. Cultural diffusion increases, and the incentives to efficient leadership and cohesion become imperative. In the course of time large units are formed by war and conquest, division of labor becomes more minute, and trade increases. There is a vast multiplication of wants and a corresponding multiplication of organizations or associations for satisfying them.

In the higher civilizations these relations become so complex as almost to defy description. Individuals become highly specialized in vocation, and they maintain contacts with a multiplicity of associations engaged in varied economic, educational, religious, moral, recreational, and æsthetic activities. Corresponding therewith is an increased complexity of organized and institutionalized social structures. This is especially obvious in the field of economic activities. In our own country the number of corporations, for example, has now grown to many scores of thousands, whereas in the days of our grandparents there were scarcely any. Moreover, there are corporations within corporations, in a most intricate interlocking series. The larger ones have many local branches, sometimes scattered throughout the world; they combine a thousand industrial processes, utilize scores of materials, and produce hundreds of products. The same multiplicity and complexity of structures is seen also in governmental institutions. National and urban political agencies and activities especially undergo a remarkable elaboration. Similar changes are equally manifest, though less conspicuous, in religious, recreational, educational, and other activities of our own day, as compared with those of the more simple days of 1850 or earlier.

Increasing Division of Labor. Such changes involve a specialization of function, or division of labor. The primitive family procures its own food, builds its own hut, and makes its own clothing, furniture, and tools. It is, for the most part, a self-sufficing economic unit. For countless ages the local group or village community carried on an independent existence. One

village was much like another. There was little trade or communication within or between them. In an advanced culture, however, there are highly developed systems of communication and transportation, and associated therewith an extensive dependence of each family and each community on many others for the elemental necessities. There are thus two kinds of division of labor and two corresponding kinds of interdependence.

There is, first, the specialization of individuals which gives rise to occupations and professions, or classes and castes. The earliest division of labor is that between the sexes. It is, however, very soon supplemented by specializations which arise in any social group in consequence of differences in aptitude and skill. One man excels others in making arrows but is excelled in hunting; sooner or later an exchange of arrows for meat becomes more or less frequent and customary. Such exchanges seem to arise naturally out of gift-giving, but it is nearly always true among primitive peoples that gift-giving is accompanied by the expectation that something shall be given in return. It would seem that the custom of gift-giving between equals developed into barter and then commerce, while the giving of gifts by inferiors to superiors developed into tribute and taxation. In any case, both forms of transfer of goods added complexity and a new type of unity to the life of the group.

Not only is there this specialization in economic activities, but there is a gradual differentiation of functional classes. Among peoples on the lower levels of culture it is not unusual for the same individual to be medicine man and headman, or chief. At higher levels these functions differentiate into those of priest, magician, healer, military leader or chief, and civil head or king. Corresponding therewith is found, in complex societies, numerous orders of priests and other developments of ecclesiastical bodies, various types and grades of soothsayers, magicians, wizards, and fortune tellers, physicians of various schools and healers of different cults, a military class with a more or less elaborate gradation of ranks and authority, and civil officials, such as king, ministers, legislative bodies, judges, and marshals. The specialization of occupations and functions is the basis of social stratification. It is, therefore, sometimes hereditary, and it is always integrally connected with the distribution of wealth and power.

A second type of specialization is that represented by the

territorial division of labor, which arises when neighboring villages, through trade, become dependent on each other for a part of their supplies. For example, a tribe along the seashore may exchange fish for fresh meat secured by hunting tribes farther inland. If such exchange began in gift-giving in order to show friendship or deference, it in time became more and more regular and extensive. The growth of trade and an increasing territorial division of labor is an essential condition for the development of a high culture. All areas of high culture have been thickly populated. But such centers are dependent on many different territories for food, raw materials for clothing, housing, and furniture, and for markets for the products of their varied industries. In a previous chapter we saw that we are now approaching a world economy, a term which indicates that all parts of the world are being brought into a condition of more or less mutual interdependence.

Differentiation and Integration. Obviously, such increasing differentiation of function requires *pari passu* the elaboration of means for their coördination and integration. In the absence of such means, cross purposes, inefficiency, or even destructive disorder results. Such results have indeed been extremely common at all stages of social evolution. What is needed is development of *institutions of social control*. Civilization is a phenomenon of peace, in the sense that it arises only in a territory throughout which peaceful economic and cultural pursuits have become the life expectation of the vast majority of the population. Within such areas have always existed a multiplicity of agencies for inducing or compelling the individual to behave in ways which commend themselves to community sentiment. Such agencies may be divided into (1) the moral, religious, and educational, and (2) the governmental. The former cultivate in the individual habits of conformity and understanding, so that he voluntarily lives according to the mode. The latter embody the organized force of the community and are prepared to compel obedience or punish disobedience.

It has often been the dream of social idealists of a certain type that man would become so perfected in his natural inclinations or cultivated attitudes that all governmental and police agencies could be done away with. Some very visionary utopians have, indeed, declared their belief that man is by hereditary instinct so

guileless and unselfish that he would live with his fellows in peace and harmony, were he not corrupted by the very agencies which society has set over him to compel his obedience. It was, in fact, a generally accepted doctrine of the political revolutionists of the eighteenth century, including many of the founders of our own nation, that "government is a necessary evil" and that "that government governs best which governs least." The truth in this viewpoint seems to be that it is possible to have too much government. An officious government that seeks universal control tends to defeat its own purposes by stirring up resistance to, and evasion of, its mandates. The present experience with prohibition enforcement in this country is an illustration. Moreover, the amount of governmental activity which promotes social harmony necessarily varies with the stage of social evolution, the character of the social traditions, and the extent to which other agencies of social integration are functioning.

But even under the most favorable circumstances, a complex society has always found a strong government necessary. This necessity arises from several causes, but they may all be summed up under the conflict of the behavior or interests of individuals or associations of individuals with the interests of the society as a whole, or of those who are in control of it. Nor does it seem likely that a time will come when some such conflicts will not constantly arise. Plato, in his immortal *Republic*, asserted that the most frequent sources of conflict among citizens were the desires for the exclusive possession of women and the right of private property. He, therefore, in his ideal society, established a communism of both women and property. The sources of conflict observed by Plato still operate in our own society; life has become so permeated with pecuniary values that most conflicts take the form of antagonism of economic interests, while crimes of passion seem as permanent as human nature. The establishment of socialism or communism would not, however, eliminate conflicts, even though they might alter their form and context. The conclusion seems inevitable that, even with a body of citizens as highly perfected as we have any right to expect, the physical force of organized government will still be necessary for the preservation of order, to prevent the liberty of some interfering with the equal liberty of others, and to prevent the constant conflict of economic classes from breaking out into social anarchy.

Summary. Social cohesion arises out of genetic relationships. It is, even on the lowest levels of culture, strengthened by territorial ties, and supplemented by individual and class differences in prestige and authority. Physical force, which appears in rudimentary forms in family and close kin-groups, becomes the organized police power of the community. It is then known as the state. The psychic bond of consciousness of similarity in contrast to all strangers arises among those of like blood, territory, and culture. It culminates in the sentiment of patriotism.

As societies advance from savagery to civilization, there arises an increasing division of labor both between territorial units and among individuals. The latter is closely associated with class stratification. Alongside the political agencies of social control are numerous others of an educational and moral sort, which mold the ideas and emotions of individuals so that they live and work in ways believed to conduce to the general good. The evolution of social organization does not follow a single and precise line among all societies, but we may for convenience, and in harmony with facts, differentiate the three broad stages of tribe, feudatory, and nation.

TRIBALISM

Meaning. As already indicated, tribal society is social organization in which kinship occupies the prominent place in the determination of the social relations of individuals and groups. Such societies differ greatly in many respects, and we can set forth only their most usual traits. At the bottom are small groups with little organization. These may consist of one family only; when composed of several families they are called *hordes*, or *camp*s. At the top are those aggregations of related tribes called *confederacies*, or *folk-nations*, with well-defined political institutions. Between these are *tribes* of varying degrees of unity, and their component units, *phratries* or *moieties*, and *sibs*.

The Horde. Like all other primitive groups, the horde is difficult to describe because of its variability. The most generally accepted notion is that it is a loose aggregation of families, each of which is in reality completely independent, or nearly so. But even this view is opposed by those who think of the horde as composed of a single male, one or more females, and their children, or an undifferentiated group of men and women, with their chil-

dren. Since it is impossible to know what the first hordes were like, efforts to reconstruct them out of certain cultural relics are guided by *a priori* considerations which lead to very different results at the hands of different theorists. We may first note briefly two such theories, and then present a few facts regarding the simplest known groups.

Theories of the Horde. These have already come into view in the discussion of the family. There is, first, the theory of *group communism*. This view is based on widespread customs in relation to property and marriage which numerous students interpret as evidences of the former practice of communism. The distinguished American ethnologist, Lewis H. Morgan, held that in the earliest hordes there was complete promiscuity; that this was at length superseded by a stage in which mating of parent and offspring was prohibited, thus giving rise to what he called the consanguine family, or brother-sister matings. In the next stage the mating of own brother and sister was prohibited, with the result that there was marriage of a group of men, often brothers, with a group of women, often sisters. In all of these stages, it was assumed, property was held in common, descent was traced through the mother, and authority was based on age and personal prestige.

As we saw in a previous chapter, there is no way to wholly prove or disprove this and similar views; the evidence is conflicting. The theory of group marriage, for example, is accepted and rejected by equally able students, though the theory of a previous stage of complete promiscuity is generally rejected. It seems possible to say at least this much, that there must have been a period of little or no social regulation, and that regulation emerged in various forms and took a variety of directions. Close inbreeding could not have long continued uninterrupted, in view of the contacts of horde with horde. This would result in occasional and even regular exchange of women between friendly hordes, wife-stealing and capture due to the desire of men for exclusive possession and the prestige attaching to such prowess, and similar phenomena. Contiguous hordes would thus have constituted a larger kindred group, possibly an early stage of the tribe.

A second type of theory is based on the assumption that male jealousy would bring about the domination of one or several

women and their offspring by a single powerful male. This view was championed by Darwin, who considered that the male would endeavor to hold his wife, or wives, by force. In that case the young males would be driven out of the horde, but, when able, would contest for possession of mates. The strongest would succeed in killing and driving out all rivals and in establishing himself as the new head of the band.¹ Such a group has been called "the primal horde."

This view has lately been taken over by Sigmund Freud in his *Totem and Taboo*. Drawing heavily on his imagination and positing an inherent "Œdipus complex," or instinctive hatred of fathers by sons, Freud pictures human culture as *beginning* with the slaying of the father by the combined sons in order to get possession of the mothers. Moreover, they are pictured as having eaten the father, in order to imbibe his strength and authority, thus giving rise to that basic religious ceremony of eating the totem or tribal divinity. Being then smitten with remorse, the sons are supposed to have denied themselves the fruits of their crime, and thus arose the rule against incest and the beginnings of mother-right. This is "the memorable, criminal act with which began social organisation, moral restrictions, and religion."

This Freudian hypothesis of patricide has been shown to be largely a tissue of fancy.² The act would have had to be committed many times. It could not have been a "crime" and accompanied by smartings of conscience *before culture began*, because it would not have violated any established code.

Nevertheless, we may find an important truth in the Freudian approach, namely, that the prohibition of incest was an essential and early, perhaps the first, great step toward the founding of social relations on a basis permitting cohesiveness, strength, and efficiency. The mere multiplication of the species would provide a basis for horde grouping, but the members could not live together in the absence of some scheme of social order giving definiteness to their mutual relations. They would, out of fear and because of the recognition of advantage, join their efforts in resisting a common danger, in attacking a common enemy, or in killing large food animals. Man is, no doubt, capable of such

¹ Darwin, Charles, *Descent of Man*, Chap. xx.

² B. Malinowski, *Sex and Repression in Savage Society*, Harcourt, Brace and Co., 1927, Part III.

spontaneous and natural grouping. But, if association went no further, the human horde would have been as temporary and as cultureless as a wolf-pack.

Biological roots of group cohesiveness are found in the bonds between parents and the long dependency of children. It is on these bases that social relations are erected. The years of dependency make possible the transmission of speech and other cultural modes, and above all the cultivation of sentiments of affection, loyalty, reverence, obedience, and conscientious regard for customary modes of behavior, without which social harmony is impossible. If, now, we try to reconcile incestuous relations within the family group with this essential and fundamental rôle of the family, we see that they are incompatible. "Incest would mean the upsetting of age distinctions, the mixing up of generations, the disorganization of sentiments, and a violent exchange of rôles at a time when the family is the most important educational medium."³ In other words, sexual impulses are so powerful and explosive that they must be restrained and regulated, if social organization and unity are to be attained. This would require as a preliminary step that the family, the cradle of culture and the prototype of social organization, must contain within itself a basis for order and authority. We venture the assumption that this is to be found in the strength and the jealousy of the male. It is not to be supposed, however, that these would operate in all places with equal vigor. So varied have been the conditions of life that we may reasonably suppose that promiscuity and inbreeding were more or less prevalent. But masculine rivalry served everywhere to check them and to make of a man, his wife (or wives), and their offspring, the original, even if somewhat unstable, social unit.

We conclude that social organization at the primeval level was nebulous and highly variable. We may suppose that four different types of grouping existed at different times and places, much as they do to this day. (1) The individual family, loosely knit by bonds of physical needs; (2) the primal horde; (3) group marriage, combining individual preference and sexual variety; and, possibly, (4) group communism.

Some Illustrations. Groups that have been called hordes or camps are found in many parts of the world, as among the Ved-

³ Malinowski, *op. cit.*, p. 251.

dahs of Ceylon, the Andaman Islanders, other pygmy Negritos of the Philippines and the Malay Peninsula, the Bushmen of South Africa, and others. Among the most incoherent groups found anywhere are those of the Fuegians. Their territory is so inhospitable that single families of man, wife, and children wander about as a solitary and independent unit. Not infrequently two families, but seldom more than five, live for a time together in a rude wigwam shelter. Descent seems to be traced through the female line; and the kinship bond implies duties of mutual aid, common defense, and blood revenge. Similar in many respects are the Polar Eskimos. Their social unit is man, wife or wives, and children. They form temporary villages of a few families, but the demand for food forces them to scatter. There are evidences that the bond of kin carries obligations of mutual aid and redress for injury, but the sense of community has little opportunity to develop.⁴

Among the Andamanese, a horde consists of some forty to fifty persons of both sexes and all ages, who hunt, fish, and camp together over a more or less well-defined area. "A typical encampment might consist of ten families in as many huts, with a few bachelors and unmarried women. There is no organized government, administration being regulated by the old men and women to whom their juniors show marked respect."⁵ Such a camp has no sense of subordination to a larger group, and yet it has its own territory, averaging about sixteen square miles. They appear to trace descent through both parents. Unchastity before marriage seems universal, but a high degree of conjugal fidelity is maintained after marriage. There are no chiefs in the true sense, but only the natural leadership of the more able men. There is little division of labor between families, and direct coöperation is the exception rather than the rule.

Instances need not be multiplied. Certain features of horde life are conspicuous. (1) The horde is a wandering hunting pack, living at a low stage of collectional economy. Its size, compactness, and mode of life are deeply affected by habitat. "A well-nigh hopeless environment imposes atomism upon the Bushmen. . . . He has no settled dwelling-place, but spends the

⁴ E. S. Hartley, *Primitive Society: The Beginnings of the Family and the Reckoning of Descent*, E. P. Dutton and Co., n. d., Chap. iii.

⁵ R. H. Lowie, *The Origin of the State*, Harcourt, Brace and Co., 1927, pp. 4-5.

night in a cleft in the rocks, bends down a bush as shelter and protection, or hollows out a trench in the ground into which perhaps two adults and several children squeeze. Their small hordes scarcely unite them except for some special enterprise requiring strength; and such hordes keep at a distance from each other, since the smaller the number the easier is a supply of food procured." ⁶ Where nature is more generous, the horde is larger and more cohesive.

(2) The horde is an aggregation of independent, or nearly independent, families. The family clearly appears in some cases as the self-sufficient social unit. It is a society itself. "It is the family, not the horde, which is the primordial societal unit." ⁷ The horde thus often lacks organization of its own. It lacks chiefs and is governed either by the male head of the family, by older men and women, or by a special group of elders. The smaller hordes are almost wholly lacking in a sense of community. In favoring environments the horde becomes better organized, develops agencies and rules for social control, and acquires capacity for vigorous and united action in its relations with other hordes.

(3) On the lowest levels the horde is relatively isolated and has a tradition of peace, though the principle of blood revenge is not unknown. In richer habitats hordes are larger, contacts and conflicts more frequent, and cultural diffusion and invention are facilitated. Thus the "manland ratio," ⁸ or the number of persons per square mile, is both a basic index of social life and organization and an essential condition for social change.

(4) The true horde is not exogamous. There has not arisen in them that division into definite kinship grouping which exogamy requires. This is not the case among the Australians, where the term horde applies to a geographical portion of a tribe containing members of several exogamous marriage totems and classes.

(5) The strength of the horde bond varies greatly. Its most common basis is kinship, but kinship feeling may be weak or strong. An almost equally frequent basis is territory. The horde is identified with a more or less definite geographical area, in which it claims and enforces a priority of right. "Whether in the

⁶ W. G. Sumner and A. G. Keller, *The Science of Society*, Yale University Press, 1927, p. 418.

⁷ *Ibid.*, p. 1563.

⁸ *Ibid.*, § 2.

snow-built villages of the Eskimo or the woody recesses of the Bushmen; in the cave-dwellings of prehistoric Europe, or the camp of the Australian with its crudely fashioned fireplace and windshield; man, however primitive, has always lived somewhere." ⁹ That "somewhere" has always been sufficiently definite so that there was some association between kin and place. Even the lowest savage thus has his homeland, to which he is deeply attached, and which he will defend by whatever means he can muster.

The Family Unit. Since the days of Aristotle, it has often been contended that the family is the basic unit out of which larger social aggregations are generated. This contention is borne out with convincing clarity by the most thorough anthropological researches. Professor Malinowski says, ¹⁰ "In all primitive societies without exception, the local community, the clan or the tribe, is organized by a gradual extension of family ties." He also points out that "the social nature of secret societies, totemic units, and tribal groups is invariably based on courtship ideas, . . . definitely linked with the original family bond. . . . In primitive societies the individual does build up all his social ties upon the pattern of his relation to father and mother, brother and sister. . . . Thus the endurance of family ties beyond maturity is the pattern of all social organization, and the condition of coöperation in all economic, political, and magical matters."

This may appear to be a somewhat exaggerated view; but the family, the natural family of parents and offspring, is not only the original biological, economic, and social unit; but, in its expansion, it forges the links which bind together a number of families in a larger psychic unity. Unlike larger social units, the individual family must be remade in each generation. Under the rule of exogamy, sons and daughters find mates in families other than their own. The sentiments which attach them to father and mother, one or both, are now supplemented by new sentiments attaching them to the families of their spouses. Thus the individual family never stands alone, but finds itself linked by kinship bonds to other families of the same locality. The creative activities of sexual instinct thus give rise at once to the larger

⁹ A. A. Goldenweiser, *Early Civilization*, A. A. Knopf, 1922, pp. 235-236.

¹⁰ *Op. cit.*, pp. 221-222.

kinship group and to the *sense of community*, or to the consciousness of relationship and common interests with persons not members of the immediate family group.

Moreover, the family, being the economic unit through which food, clothing, and shelter are provided, is necessarily and from the very first bound up with the forms and ideas of property. In this respect primitive society has many similarities to our own. The division of labor between the sexes, the provision for offspring, household maintenance, and the inheritance of goods, are universal features of human society and always center in the family. In primitive society the family group was, as a rule, extended beyond the immediate parents and children, and this larger kin group often had certain property rights and responsibilities in common. Such community of property, or communism, was limited to the kinship group and usually to the more closely related part of it. It was due, therefore, to the natural spread of family ties by marriage. The growth of property, especially after the domestication of animals, strengthened the power and authority of the male head of the family and kin-group. It was thus a factor in giving rise to those strongly organized patriarchal tribes and peoples who laid the foundations of all the great nations and empires of history. Thus we see that the family occupies the central place in the original phases of social organization and integration. It is, on the one hand, a consequence of man's needs for sexual satisfaction, food, and protection, but it becomes, on the other, the agency for the transmission of culture and for the cultivation in the younger generation of those emotional attitudes which adjust individual behavior to the requirements of organized social life.

The Unilateral Kin Group. In the chapter on *The Family*, we saw that descent in primitive society may be traced either through the mother, or through the father; it may be matrilineal, or patrilineal. In consequence of this method of tracing relationship, an individual comes to have closer bonds, genetic, economic, and social, with one-half of his actual relatives than with the other. While the family is actually bilateral in its kinship bonds, that is, related to both father and mother kin, descent in tribal society is always traced unilaterally,¹¹ that is, through one line to the complete exclusion of the other. We may follow American

¹¹ R. H. Lowie, *Primitive Society*, Boni and Liveright, 1920, p. 111.

custom in applying the general term *sib* to the resulting unilateral kinship group, using the term *clan* to designate the sib group, or *sibship*, which is matrilineal, and the term *gens* (plural, *gentes*) for the father sib. It should be added, however, that many authors use the term *clan* for all sib groups. Moreover the term *gens* is often used specifically for the Greek and Roman sibs, while the term *sept* refers to the ancient Irish sibs.

A clan, or mother-sib, would include a woman, her sons and daughters, the children of her daughters (but not the children of her sons), and the children of her daughter's daughters (but not those of her daughter's sons). The gens, or father sibship, would in similar manner include a given man, all of his children and all of his subsequent descendants, both male and female, through the male line. In this case, all these descendants would take the father's sib name and adopt his sib insignia. His daughter would be required to marry outside her own sib, and her children would take the sib name of her husband. This daughter, however, would not, with one or two exceptions, change her sib when she married. She would still be a member of her father's sib, or gens, and not of her husband's; and hence her children would have mystical and practical relations with him and his kinfolk, which they would not have with her.

The sib relationship is permanent and definite. Moreover, it is nearly universally unalterable during the life of an individual. There seems to be no case where a man enters his wife's sib upon marriage,¹² even with matrilineal residence. On the other hand, there are only one or two known cases where the wife enters the sib of her husband. At the same time the adoption of children is very common among primitive people, sometimes to an extent that disregards actual parentage to an extraordinary degree;¹³ and in this case the child enters the sib of that parent through whom descent is customarily traced. Likewise, mature persons, men from broken sibs, though strangers, are adopted, not infrequently by a solemn ceremony of blood exchange.

The sib, though it includes but one-half of the blood relatives, is nevertheless more inclusive than the family. It includes *all* persons related through either the male or the female line. It thus includes not only a given person, one of his or her parents

¹² *Ibid.*, p. 115.

¹³ W. H. R. Rivers, *Social Organization*, A. A. Knopf, 1924, pp. 185-186.

and all brothers and sisters, but all the aunts, uncles, grandparents, great-aunts and great-uncles, and cousins of first, second, and third degrees, in *either* the maternal *or* the paternal line. All these have the same sib name, and the rule of exogamy applies to them all. Not all these persons could actually trace their blood relationship to each other. Nevertheless, the rule of exogamy applies to all persons of the same sib *name*, whether their blood relationship is real or fictitious, or whether they live in the same village or many miles away. In primitive thought a person's name, and especially his totemic name, is more than a mere appellation, for it designates the inner essence or very nature of a person. It is often synonymous with his "soul", or "other-self." Hence marriage between persons of the same name would be incestuous and among many peoples both a crime and a sin.

The solidarity of sib sentiment is usually greatly augmented by the tradition that the members of the sib bear a mysterious relationship to some object called their *totem*. This may be a plant, animal, or inanimate object, even a manufactured article. Animal totems are most common. The totem is represented symbolically, and the symbolism and ritual connected therewith play an important part in sib ceremonials. Not infrequently the members of the sib believe themselves descended from the totem, or from a man or woman who had some intimate connection therewith. It is because of this great importance of the totemic relationship that the initiation ceremonies, whereby the youth, boy, or girl, is inducted into full sib membership and introduced to the totemic mysteries, constitute an outstanding feature of sib activities. These relationships and ceremonies are endowed with deep religious significance, so that the sib is the principal agency for carrying out many important rituals, especially those relating to birth, initiation, marriage, and death.

The sib bond is thus primarily kinship, but here also we find the usual variability. Adoption, marital custom, and the scattering of the totemic group over a considerable area often make it impossible for actual kinship to be traced. The blood tie is often fictitious. Possession of the same totem is, however, equivalent in primitive thought to close kinship. It should also be added that the sib group, here and there, becomes confused with the local or territorial group. Among the Australians, a child inherits his mother's totem, but he belongs to his father's horde.

Since the horde owns a definite territory and marriage is patrilocal, there is a certain conflict between the totemic and the territorial bond, with a strong tendency for the latter to become dominant. The importance of the territorial bond is shown also by the tendency of neighboring groups to include members of like totems and thus to develop a wider sense of common origin and interest.

Functions of the Sib. (1) *Exogamy*. By all odds the most important and universal function of the sib is to supervise marriage, and particularly to enforce the rule of exogamy. The headman or the elders frequently supervise concubinage, determine who shall mate, and otherwise regulate problems connected with marital customs. (2) *Property*. Closely related thereto are, in many cases, certain rights over the use and inheritance of property. It was formerly thought that individual ownership was very slowly achieved and only at a relatively advanced cultural stage. It is now seen, however, that ownership, and also inheritance, range in all parts of the world from purely individual to definitely communal. But the communal group is nearly always a limited portion of the totemic relatives. In fact, there seem to be very few cases where property is owned and inherited by the clan as such. Approximations sometimes occur in the case of communal land, where there is a close identity between the sibship group and members of the local community. Even in this case, however, most of the land is very likely to be more or less definitely allotted to individual families, leaving only a portion as the "common land" of the sib. Thus what is known as the "village community" is an easy outgrowth of the sib. In matrilineal society, this may occur where the women own the land, and residence is matrilineal; likewise, in patrilineal society, with patrilineal residence.

(3) *Mutual Aid and Redress*. A practically universal feature of clan brotherhood is the obligation to render aid to fellow clansmen, to defend them when in danger, and to avenge any injustice done them. In tribal societies the individual is more fully merged in his group than is the case in civil societies. He is, therefore, more fully responsible for the actions of his sib mates, sometimes in ways that seem to us strange and even unjust. The nature of this obligation is best seen in the custom of blood revenge. As a rule, if a member of sibship A is slain by a member or members

of sibship B, then the survivors in A are bound to punish, usually by death, a member of B. This is not different in principle from the action of Great Britain or the United States in sending a punitive expedition of marines and soldiers to China or Central America to punish the natives there for killing a missionary or a gold hunter.

The blood feud thus becomes a source of serious disturbance in primitive society, as it does sometimes even in civilized communities. The effort of the avenging party is usually directed against the offender, even though the punishment of any member of the latter's sib would expiate the crime. The offender's kin are under a solemn obligation to defend him, with the result that murder not infrequently leads to long drawn out feuds, or even to civil wars. Such hostilities do not necessarily involve all the population of a given area but only the sibs immediately concerned. These may be and often are sibs of the same tribe. Two sibs of a tribe may thus be at war or engaged in guerilla hostilities, while the other sibs are at peace. Obviously, one of the great benefits resulting from the development of powerful tribal chiefs with extensive authority is the substitution of some kind of deliberative justice for the blood feud. In some such cases the chief or king asserts possession of all his subjects, so that to slay a subject is to injure the king, who then demands material compensation.

Even in the absence of such higher authority, however, the sib system sometimes evolves peaceful means of settling grievances between members of two sibs. Experience teaches the advantages of establishing by custom a scale of compensation for injuries, or some plan of negotiation for the composition of differences. This would obviously be the case for minor injuries to the person, such as a beating or a broken arm, or for theft, illicit love-making, property trespass, and so forth. Customs vary greatly, however, from society to society. The custom whereby the murderer, often assisted by his kin, pays compensation to the relatives of the deceased is found in widely scattered areas, and is known as the *wergild*. The history of this and similar terms indicates the gradual substitution of financial compensation for personal retaliation in Celtic and Teutonic areas of western Europe with the rise of community authority and the decline of tribal custom.

(4) *Political Rights and Duties.* In many societies the sib members elect, often in a thoroughly democratic manner, their headman or chief. Among the Iroquois Indians each clan elected a sachem or civil head, both men and women voting; the same persons held the right to remove the sachem. They also elected the war chiefs. In this particular case the tribal council, composed of sachems and chiefs, exercised supreme authority over all matters pertaining to the tribe. After the formation of the Confederacy, the sachems and chiefs of the five tribes constituted a general council dealing with all matters of intertribal concern, or of common tribal action. Thus the members of this supreme governing body, in one of the most powerful organizations ever created by a matrilineal folk, were chosen democratically by the constituent clans.

Similar political powers are not uncommonly held by the sib groups, but there is endless variation. Among the Australians, as elsewhere, political authority is in the hands of the council of old men. Such gerontocracy, or rule of the elders, obtains in both sib and tribe. Whereas the women enjoyed considerable political influence, direct and indirect, among the Iroquois, they seem to have none among the Australians. The elders among the latter have power to settle such questions as the punishment of disturbers of the peace and violators of incest rules, the reception of strangers, the location of the camp, the allotment of concubines, questions of war and peace, and similar matters. Not infrequently an outstanding headman is recognized as the leader of the elders and exerts a powerful influence over sib and even intersib affairs.

(5) *Social and Religious Rights and Duties.* Since the sib is a kinship organization, it has control of all matters pertaining to blood relationship, actual, fictitious, or superstitious. It has charge of the initiation ceremonies, either directly or by delegated authority. It possesses the right to bestow names on its members and to adopt strangers. Its members are permitted to wear the sib insignia, body marks, dress, or other symbolization of sib relationship. It often possesses special songs and dances on social, religious, or ceremonial occasions. It enforces the taboos against killing and eating the totem animal. Where, however, the totem is a principal source of food, as among the Australians, it has also the opposite function of conducting those all important ceremonials designed to increase the abundance of

the totemic animal or plant. Other religious rites are designed to secure the aid of that mysterious mana often believed to reside in the totem.

Moiety and Phratry. Not infrequently a tribe will be divided into two exogamous groups called moieties. The moiety may exist with or without sibs, just as the sib may exist without moieties. The function of the moiety seems to be to provide a working basis for the rule of exogamy within the large consanguineous and endogamous (marrying within) tribe. The sib has in addition numerous governmental activities. This distinction cannot, however, be sharply drawn, with the result that it is not yet clear whether the moiety preceded the sib and represents it at an early stage, or whether the latter preceded the former. Tribes exist with moieties and no clans; clans and no moieties; and both moieties and clans. It is thus possible to argue that the moiety came first. Rivers ¹⁴ argues that the moieties represent two originally distinct and more or less hostile groups. The prevailing view, however, is that the moieties result from a splitting of original clans. In any case, a group of clans, which think of themselves as having common descent, is called a *brotherhood* or *phratry*. The latter and moiety often seem synonymous. The rule of exogamy which applies to the moiety extends to its constituent clans.

This scheme of organization is illustrated by the Seneca Indians, one of the Iroquois tribes. One phratry included clans named Bear, Wolf, Beaver, and Turtle; the other, those named Deer, Snipe, Heron, and Hawk.¹⁵ Tradition has it that the original sibs (or moieties) were the Bear and Deer. Through repeated subdivision each of these became a phratry, to which the rule of exogamy applied. Descent was traced through the female line, so that children would belong to one phratry and their father to the other. Thus every family combined both phratries. Sisters might, however, marry into different sibs of the opposite phratry.

The functions of the phratry seem to be wholly social, recreational, ceremonial, and religious. Among the Indians, ball games were staged as contests between them, the betting sometimes being heavy. There are often important reciprocal relations

¹⁴ *Op. cit.*, pp. 27-33, and *The History of Melanesian Society*, Cambridge Univ. Press, 1914, Vol. II, pp. 557-564.

¹⁵ Lewis H. Morgan, *Ancient Society*, Henry Holt and Co., 1907, p. 90.

between members of the moieties, both social and economic. Among the Iroquois one of these was the reciprocal obligation to serve at funerals. Grouping by moieties was often followed in the formation of hunting and war parties.

Tribe. A tribe is a larger kinship group comprising a number of sibs. It has two universal traits, and apparently only two, namely, common language and common territory. As a rule, it is endogamous, that is, the members marry within the tribe. Endogamy is sometimes an obligation, sometimes not. As an almost universal rule, a tribe has some degree of common government and the tradition of common action in warfare. It is a distinctly political grouping. Such unity of action requires one or more chiefs and a tribal council composed of representatives of the sibs. Tribes vary greatly in size, strength, cohesiveness, and elaborateness of organization. The Australian tribes are weak and scattered, primarily because of the niggardliness of the environment. Their sibs often constitute separate territorial units, and may have little sense of unity with, or responsibility to, a larger community. Many tribes, on the other hand, especially in America and Africa, have been populous, closely knit, strongly governed, and animated by a keen sense of tribal loyalty.

There are two opposed theories of the origin of the tribe. One holds that it resulted from the natural increase and fission of a single genetic group, the other that it resulted from the combination of originally unrelated hordes. Probably both theories are true of different tribes, much depending on the physical environment and the extent of contacts with neighboring groups. A common process seems to have been as follows. A horde divides into two moieties, or original sibs; or two neighboring hordes may combine, each original group constituting a moiety or sib. These increase in numbers and spread into contiguous territories, each primary sib dividing into two or more, a process that might be repeated. Held together by kinship, language, common custom, territorial propinquity, and the tradition of combining under common chiefs to repel common enemies, the numerous sibs constitute a tribe. Such a tribe might by similar processes become two or more. Tradition held that the Iroquois tribes were derived in this way, some of the clans being, in fact, found in all the six tribes.¹⁶

¹⁶ Morgan, *op. cit.*, Part II, Chaps. iv and v.

On the other hand, it is not unreasonable to suppose that originally distinct hordes, through intermarriage and a tradition of coöperation, may have combined into a more permanent organization. The struggle for existence, or the constant urge of competitive life, has often brought about the union of even semi-hostile groups in order to repulse a common enemy. The formation of "a more perfect union" in order to "insure domestic tranquillity, provide for the common defense, and promote the general welfare" is as old as man himself. At a later stage tribal organization was rendered more complex by conquest, the immigrant group forming an upper caste, as indicated below.

The tribe is for tribal society what the nation is for us. It is the independent political unit, acknowledging no higher authority, possessed of its own territory, and having as its supreme function the defense of that territory against all alien aggression. Neighboring tribes are as a rule traditional enemies. The tribal council does not interfere with the internal affairs of sibs and phratries. It is concerned with problems of intertribal policy, or occasionally with intersib feuds. The tribal tradition, therefore, centers about warfare, consciousness of unity and strength, the prowess of warriors and chiefs, victory and defeat. Its minimum organization of war chief and council becomes more elaborate and more highly integrated with conquest of weaker tribes, especially in those tribes organized on the patrilineal basis.

Confederacy. A union of tribes for diplomatic and military purposes constitutes a confederacy. It may be a temporary alliance for a specific crisis, a league of considerable endurance, or such solid and permanent union as that of the Iroquois. The fact that it is not common, even at the higher levels of savage society, is an indication of the intensity of tribal separatism and exclusiveness. A confederacy was nearly as difficult under tribalism as a league of nations is under nationalism. Nevertheless, there have been many of them, notably among the North American Indians. In all cases the tribes entering them spoke dialects of a common language. An outstanding example is the League of the Iroquois, begun before 1450 and never broken up. It was based solidly on common kinship and strengthened by common language and by contiguous territory. Each of the five (or six) tribes remained independent in tribal matters. There

was no official head or executive magistrate, the supreme authority being vested in a council of fifty sachems and chiefs, who were also tribal sachems and chiefs, and elected by the constituent clans. There were, however, two war chiefs of equal power. Voting was by tribes, and unanimity was necessary for decision and action.¹⁷

Such an organization as the foregoing constituted a metronymic folk-federation. It was in many important respects comparable to the union of the American colonies under the Articles of Confederation. Had the Iroquois gone one step further and provided in the Confederacy a power superior to the individual tribes, it would have taken the same step the American colonies did when they made the Union supreme over the states, an end finally achieved, however, only after the Civil War. To that extent the Iroquois fell short of forming a true nation. It is not impossible that this failure was associated with metronymic descent. In any case, those tribal confederacies which have played great rôles in the history of Europe and Asia, such as the Hebrews, the Germans, the Celtic groups, and others, developed the institutions of kingship (king, emperor, czar) and the associated ruling class, to whom a number of tribes were subordinate.

Associations. In addition to the major units above described, tribal societies reveal a very considerable number of *status groupings* and of *purposive associations* of a more or less voluntary nature. Family, clan, phratry, and tribe are definitely genetic in basis and origin, and their purposes grow directly out of the problems of mere existence and survival. The voluntary purposive associations are designed to serve varied, and less elemental, needs. The family and totemic kindred of an individual are always determined by birth; so also to some extent is his membership in various other groupings determined by kinship or territorial bonds. In some cases such membership is dependent in part on election or individual choice; in other cases, it is wholly a matter of choice. Associations may be enduring in order to satisfy a continuing interest, or temporary for a momentary interest. In all these respects the purposive associations differ little from our own, such as the business corporation, the men's club, the Y. W. C. A., or the Republican Party. With us family connec-

¹⁷ *Ibid.*, Part II, Chap. v.

tion counts for less, but it is often an essential condition of membership. Among primitives, as with us also, sex distinctions often play an important part in membership.

By way of illustration we may note among the status groupings the division into the uninitiated, the initiated but unmarried, and the married; or some similar gradation. Then there are the age classes, persons born or initiated during a given period, say four years, are grouped together, often in an important social union. Men's and women's clubs, with their club houses, are common expressions of sex differentiation. Sometimes associations depend on exploit or experience, as the association among certain Indian tribes of those who have had similar mystical visions. Secret societies, of whom there are a myriad in our own country, flourish among primitive folk, and membership in them is often necessary for marriage, office, participation in religious activity, or burial in honorific style.¹⁸

There is thus an endless variety of these associations for economic, political, police, military, magical, religious, juridical, ceremonial, recreational, and sociability purposes. They are important factors in the conduct of daily life and often play a distinctive part in the larger affairs of tribe and territory. In some cases the associations, particularly the larger men's societies, by bringing together in a fraternal spirit, under the impulsion of a common interest, men from a number of kinship groups, reduce kinship separatism and lay the basis for a wider union on a territorial basis. But such a result is infrequent.¹⁹

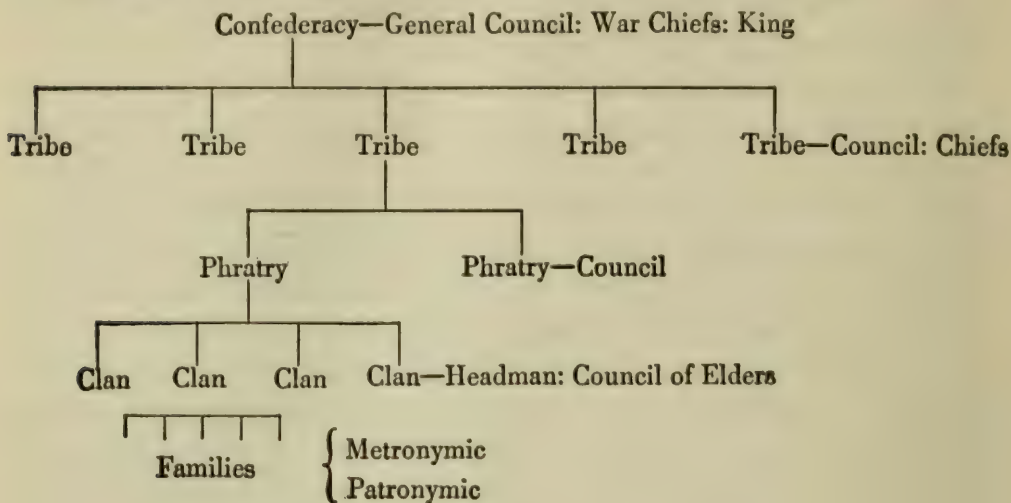
Summary. The foregoing is a mere outline of some of the basic social structures of tribal societies. At their base is the family, charged with the primordial functions of species maintenance. It is the *economic* unit. Families are grouped into sibs, whose functions are primarily *juridical*; its headman or council mediates between members and determines the action to be taken in disputes between its members and persons of other sibs. Sibs are often grouped in phratries, whose functions are *social and religious*. The independent political unit is the tribe, whose functions are largely *military*. Sometimes tribes form leagues and confederacies for *political, diplomatic, and military* purposes.²⁰

¹⁸ R. H. Lowie, *The Origin of the State*, 1927, p. 81.

¹⁹ *Ibid.*, Chap. v.

²⁰ Cf. F. H. Giddings, *Principles of Sociology*, The Macmillan Co., 1896, pp. 273-284.

We may picture tribal society in the following diagram:



FEUDALISM

Meaning. The term feudalism is customarily applied to a stage of social evolution intermediate between the tribe and the fully formed nation-state. Its essential characteristic is a stratified arrangement of social classes, in which the supreme powers of control over the social order and the disposition of man-power and resources is concentrated in an upper politico-military class. Closely allied with this class is the priesthood exerting an enormous control over the habits of thought, feeling, and action of the masses of the population, by their manipulation of mystical ideas and ceremonies. Next in the stratification usually comes a considerable body of freemen, below whom are the half-free, the serfs, and the slaves. This arrangement, however, varies considerably, as does also the completeness of development of the feudal system. Like all other types of social organization, feudalism has its elementary stages, its most highly perfected forms, and its period of dissolution and transition into a succeeding stage.

While it seems possible to say that all great civilizations have passed through a feudal stage, this should not be interpreted as implying that this stage has been exactly alike in all of them. The statement must be taken broadly. There are feudalisms and feudalisms. There has been only one just like that of western Europe, but that of Japan developed wholly independently and yet very similarly in many respects. Such cultural parallelisms

are due to the operation of like causes, but social causes are seldom alike in all respects. There are various features of feudalism, such as class differentiation through conquest and personal independence, which are found in many parts of the world. There can be no objection to calling such phenomena "feudal," for they represent to our minds social arrangements which are typified in our own culture by the feudal era.

Processes Resulting in Stratification. There is a variety of distinguishable processes, or sets of conditions, giving rise to a hierarchy of individuals and classes. At one extreme are those resulting in *internal differentiation on various bases of personal prestige*. At the other extreme is *group amalgamation through forceful domination*. The former may not often destroy the fundamentally democratic character of primitive societies, whereas the second inevitably results in superposition of classes and the organization of the class state. With other phenomena briefly noted below, these various processes bring about the feudal state.

Bases of Personal Prestige. Individual differences in personality result in differences in power and authority even in the simplest societies. The most common source of personal prestige is prowess in war and the chase. Such prowess attests qualities of strength, courage, endurance, and intelligence, which have weight also in day-to-day affairs. Men showing it are "men of action" and broadly comparable to leaders in practical affairs in our own society. They are very likely to become men of wealth, and at all stages of social evolution wealth is a source of envy and admiration. Wealth gives security and confidence. It makes possible display and the satisfaction of vanity and generosity, whereby social esteem is augmented and a personal following secured and maintained.

Another source of prestige is the possession of powers of persuasion. Skilled orators are found even among primitives. They include the politicians of all ages. More or less closely allied as a source of personal power is popular reputation for contact with and manipulation of occult powers. Here are included medicine men and priests, often men of superior personal force and shrewdness. At all stages of social evolution, those who control religious ideas and institutions exert a decisive influence on the distribution of power and prestige. At all stages, moreover, there is an alliance of the priestly class with the dominant politico-economic

class. Then there is the prestige due to age and experience. Age classes are common in tribal society; the division into children, youths, mature men and women, and elders is nearly universal. The council of elders not infrequently was self-perpetuating, new members being elected from those who had achieved distinction. They also frequently designated one of their number as headman.

Two Universal Bases of Class Distinction. The simplest societies present very little genuine class stratification, though they reveal personal, and even family, prestige. But in somewhat more complex tribal groups two very important and universal phenomena produce class differentiation. Differences in *the distribution of wealth* create the distinction between the wealthy, the comfortable, and the poor. This is a distinction based in part on differences in natural abilities and in part on differences in fortune or luck. It is perpetuated largely by the inheritance of property. Closely associated therewith is the stratification based on *degrees of personal independence*. It is a not uncommon practice for the poor men of a tribe, outcasts from other tribes, or remnants of sibs exhausted by famine, feud, or pestilence, to place themselves in the *service* and thus under the *protection* of the wealthy and powerful. "In South Africa there is the so-called 'bywoner-system,' whereby a young pair that has not the small outfit allowing of independent living, attaches itself to some property-owner in a sort of clientage."²¹ In some cases, "an entire poor class of herdsmen enters, half freely, into the service of some rich tribe."²² Not infrequently individuals become so deeply indebted that they become the slaves of their creditors. Such phenomena give rise to the distinction of free, half-free, and slaves, which have their counterparts in all societies.

The Historic Rôle of Pastoral Nomads. There is a third type of stratification, which we find in all those feudal societies which have evolved into nations. It is based on *conquest*. Here, again, we meet a quite varied set of phenomena, but their main features may be outlined under the following headings: (1) The Superiority of Patriarchal Institutions; (2) Juxtaposition of Herdsmen and Peasants; (3) Plunder and Tribute; (4) Migration and Conquest.

²¹ Sumner and Keller, *op. cit.*, pp. 425-426.

²² Franz Oppenheimer, *The State, Its History and Development Viewed Sociologically*, B. W. Huebsch Co., 1922, p. 38.

(1) *Superiority of Patriarchal Institutions.* There is considerable difference of opinion as to whether the custom of matrilineal descent preceded patrilineal, or whether both customs existed from immemorial time among different peoples. Both types exist among very primitive peoples. Nevertheless, there is some indication that there may have been here and there a change from matrilineal to patrilineal descent in consequence of the domestication of animals. Woman was the primitive agriculturist, but man was the domesticator and owner of animals. This gave him a place of primacy in the economic arrangements; it strengthened the practice of wife purchase; the migratoriness of life separated the wife from her kinfolk and brought her more completely under the dominion of her husband. There resulted *the patriarchal, or the religious proprietary family*,²³ the family in which the patriarch is supreme in political rule, in religious authority, in social prestige, and in economic power. Wives, secured by purchase or exchange, are subordinate, and adultery by them punishable by death. Sons, with their wives and children remain within the paternal household or closely attached thereto. Obedience of all members is firmly exacted. Primogeniture establishes prestige and hierarchy within the family group. Ancestor worship, formerly found among the Indo-European peoples and still an important cult among the Chinese and the Japanese, binds the entire household to the patriarch in strong emotional bonds.

Historically the father-family has proven superior to the mother-family as a basis of social organization. It has everywhere been an essential element in the formation of great states. It possesses greater coherency, individuality, and independence than the mother-family. It consolidates in the male line the three often separate customs relating to *descent* (blood relationship), *inheritance* of property, and *succession* to title and office.²⁴ The mother-family seems to have involved the whole social organization in a conservatism, a stultification of individual and hence of social energy and enterprise, and an impotency of decision which shunted the matrilineal peoples out of the path of higher cultural advances. The patriarchal family had one distinct advantage of first importance: it united the kin group in a closely knit union

²³ Giddings, *op. cit.*, p. 290.

²⁴ Rivers, *op. cit.*, p. 85.

with centralized and unified authority, a trait making it highly efficient in warfare. In the matrilineal family there is an inherent weakness in the division of authority and leadership. The father is more firmly attached to the family of his mother than to that of his wife, while authority over his children is exerted by their maternal uncles rather than by himself. He divides his time and energies between two families. Masculine ambition and capacity for organization were thus largely nullified. We have seen that among the Iroquois, where maternal organization achieved its highest development, the tribal council was elected by clans, and unanimity was essential to action. Out of such an arrangement an efficient state could not develop. In the patriarchal tribe the institution of kingship, with more or less autocratic authority, gave unity, quick decision, and efficient coöperation. Moreover, the pastoral nomads found a use for slaves in the strengthening of their economic resources. They could make and consolidate the results of conquest, because their regulative power was strong and durable.²⁵

(2) *Juxtaposition of Herdsmen and Peasants.* In many parts of the world and at many times nomadic pastoral peoples have lived in steppes, grasslands, or semi-deserts, bordered by fertile valleys inhabited by settled villagers. The former are hunters and warriors accustomed to a strenuous life, the latter are tillers of the soil and small traders, and accustomed to peace and comfort. The herdsmen are patronymically organized. Such a kinship moves as a unit and is easily welded into a fighting organization. Moreover, the herdsmen are possessed of horses or camels, and accustomed to make and break camp expeditiously; they take their food supply with them in the form of herds, and hence are extremely mobile. They are inured to hardship and privation, and delight in risk and feats of daring. There are no more marvelous military exploits in all history than the movements of Mongol tribes across Asia and into Europe under Jenghis Khan in the early thirteenth century.

(3) *Plunder and Tribute.* The juxtaposition of herdsmen and peasants leads to more or less regular plunder and pillage. Periods of drought on the grasslands drive the herdsmen toward the more fertile areas, a phenomenon which has been repeated almost endless times, especially in western Asia and central

²⁵ Cf. Sumner-Keller, *op. cit.*, p. 1995.

Europe.²⁶ In his brilliant study of these phenomena, Oppenheimer²⁷ shows that they vary all the way from (1) irregular pillaging accompanied by death and destruction, through (2) regular raids in which a portion of the surplus of the peasants is carried off after harvest time, to (3) the bringing of tribute to the tents of the herdsmen as a means of forestalling a raid.

(4) *Migration and Conquest*. A further momentous step is taken when the pastoral nomads move in upon the agriculturist territory and settle there. A classical example is the conquest of Egypt by the Shepherd Kings, the pastoral nomads whose descendants even now graze their herds between the Nile Valley and the Red Sea. Similar were the migrations of those Germanic, Celtic, and Slavic tribes whose turbulent ferment finally broke up the Roman dominion in the west. During the long peace maintained by Rome, a vast area in western and central Europe had become an agricultural domain sprinkled with villages and towns. The underlying kinship structures still persisted to a large degree, but were being overlaid with territorial concepts of which the village community was the unit. Such a domain was an irresistible temptation to those hordes of patronymic tribes and confederacies that swarmed out of western Asia and the great plains of Russia and north central Europe, some moved by the drying up of pastures and pushing others westward and southward.

Such migrating peoples necessarily develop the arts of war, for they traverse hostile and unknown territory and must live largely by plunder. They also learn to combine resources, so that the great migrations, the *Völkerwanderung*, are marked by repeated leagues, alliances, and confederations. War chiefs with their personal following multiply. Ancestral names give way to new terms signifying military prowess. The Franks, the most powerful of all the west European consolidations, included a half-dozen tribes, but "Frank" meant "warrior" or "wanderer." Likewise, "Saxon" meant "swordsmen" and "Alemann" meant "stranger" or "invader." The stage represented by such combinations has been called the "League of the Clans."²⁸

²⁶ For a modern instance referring to the Kurds of the upper Euphrates Valley, see Ellsworth Huntington, *World Power and Evolution*, Yale Univ. Press, 1919, p. 213.

²⁷ *Op. cit.*, pp. 56 *et seq.*

²⁸ Edward Jenks, *The State and the Nation*, E. P. Dutton and Co., 1919, p. 123; for a survey of various sociological classifications of stages in the evolution of the state, see H. E. Barnes, *Sociology and Political Theory*, A. A. Knopf, 1924, Chap. iv.

The invaders and conquerors impose themselves as a ruling and governing class upon the agricultural villagers. Themselves more or less stratified, they govern communities also stratified into slaves or serfs, commoners or freemen, and an aristocracy of wealth. The primary relationship between these groups as wholes is that the warrior nobility are obliged to protect the commoners against outside aggression, in exchange for tribute in the form of goods and services. The conquering group, usually a minority, may, as among the Incas, form a segregated localized group to whom tribute is brought. They may be quartered as nominal guests in the households of the well-to-do natives, and possess themselves of a portion of the produce. They may be scattered over the land, each in his own stronghold with family and retainers, and consuming the produce of his own territory. This latter system was extensively followed in Europe. It first transmuted the units of government *from the kinship basis to one of fealty or personal allegiance*. After some centuries, this personal basis of allegiance gave way to territory as the primary bond of union; or rather the territorial bond rises more prominently to consciousness; it has been present, so far as the rank and file of the population is concerned, for generations. The plundering marauding chiefs become literally "the lords of the land." The king of the Franks becomes the king of France.

Commendation and Beneficium. The above mentioned exchange of services for protection is world-wide. In nearly all societies there are various ways in which the rich and powerful protect the poor and weak in return for personal service. It is seen in the relation of patron and client throughout the Roman Empire. It is seen in the relation of political boss to ward heelers in a modern democracy. What we call "graft" is an exchange of money for protection; it is a form of the protection-service relationship in a society where money buys all things. Tribal society reveals many variations of the above instance where rich protect poor for a suitable return. In southwest Africa there are said to be no really free persons except a small powerful aristocracy. "Each person is in some way bound by a vassal and serf relation to an over-lord, and all legal protection consists essentially in this patriarchal relationship." Similar institutions are found in Abyssinia, Madagascar, Malaysia, India, China, and Japan. The political "graft" form of this relationship is found

in Morocco, where the Jews secure protection of the Berbers by an annual payment.²⁹ Obviously, such an exchange is more necessary in turbulent times, when the strong and powerful are able to defend their own, but the weak are at the mercy of robbers and plunderers.

It was out of such conditions that arose in western Europe the institution known as "commendation," whereby one individual placed himself and his property, if any, under the protection of another, and agreed to serve him loyally. The weaker man retained title to his land, or at least the right to its use and to the control of its inheritance, but he became a vassal of his superior. During the later days of the Roman Empire, when there was great unrest attending the barbarian invasions, this practice became very common, in spite of prohibition by the government. It began with the landless men and small landowners, and spread to the more wealthy. It continued under the Frankish emperors.

Alongside was the *beneficium*, whereby the individual who surrendered title to his lands, temporarily or in perpetuity, would receive them back and enjoy the use, or usufruct, thereof, in return for a nominal sum. During certain periods, the Church lands especially grew rapidly in consequence of this practice. For the landowner the reasons for such action were both political and religious; to secure the protection enjoyed by those under the dominion of abbots and bishops, and to advance the cause of his soul's salvation. Like the ecclesiastical authorities, however, the Roman nobles and the German nobles who followed them were not averse to increasing their domains, wealth, and power. In fact, with the decline of kingly power after the break-up of the empire of Charlemagne, the great counts and other lords used their prerogatives to compel all persons within their domains to join in the relationship of mutuality implied in protection for service.

The Comitatus. Somewhat closely allied, was the organization about each powerful person of his own personal following. Chief and companions, called a comitatus, constituted another important unit out of which the feudal chain was woven. The custom whereby strong and aggressive men gather about them a band of closely attached personal followers and live more or less by plunder and robbery is limited to no age or social order. Among

²⁹ Sumner-Keller, *op. cit.*, pp. 719-722.

the invading, conquering Germanic tribes, such units were very common, but the relationship of chief and companions or chief and vassals was not unlike that of the Roman patron and clients.

Among the early Germans, however, to live by robbery and plunder was honorable and meritorious. Such bands were bound together by the strongest personal ties. It was in their relationship that are found the roots of the feudal oath of fealty, the honor attaching to the position of vassal, the strong bonds of personal loyalty between a lord and his men, and the tradition of mutual faith and service. The chief's men were dependent on his bounty, shared his exploits and booty, and were ready to die in his defense. It was the combination of the ideas of *beneficium* with the ideas of the relationship of lord and vassal, of chief and companions in arms, that resulted in the further evolution of feudal institutions.

The Feud or Fief. Those who acquire wealth and dominion are in position to attach to themselves the services of others in exchange for favor or property. There results a great variety of customs all having as their norm the use or cultivation by one person of property owned by another, giving in return a part of the income or produce. This occurred in varied ways among tribal peoples. Studies of the ancient Irish, when in the pastoral stage, show how a cattle-king or Bo-aire increased his herds by giving parts of them into the charge of ambitious young men, and receiving in return a part of the increase as rent. Much the same sort of arrangement is universal among agricultural peoples. A great landowner lets or rents a portion of his land, receiving in return a portion of the produce and perhaps also special services at planting and harvest times.

Feudalism in western Europe modified this institutional pattern, without altering its essential nature. The conquering chief, king, or emperor, having mastered a territory, was under the necessity of controlling it and securing from it the expected tribute. His aim was to provide himself with the military force which rulership requires and the income necessary for the maintenance of a royal court. His means is his assertion of control of all the land. In many parts of the world, the chief is looked upon as the actual or theoretical owner and grantor of the soil. In an age when the soil is almost the sole source of wealth and livelihood, its control gives dominion over those who dwell upon it. The chief's right

to the land rests on conquest and might, final answers to all moral considerations. In Europe the plan was for the chief to assign jurisdiction over portions of the conquest to his companions, or his vassals-in-chief. They become the counts, dukes, and other lords of such areas. In return for the power and income thus conferred, they were bound by solemn oath, honor, and custom to render to the chief or king military service in definitely stipulated amounts. There was thus provided the basis for the royal military force. The chief vassals in their turn granted fiefs to lesser lords and thus provided themselves with personal armies according to their several powers and dignities. Such infeudation and subinfeudation, accompanied by commendation, finally knit the entire territory, from manor to kingdom, into an intricate web of vassalage and subvassalage. When fiefs became hereditary, as they did by the tenth century, the feudal system reached full maturity.

It contained within itself, however, the seeds of its own destruction. A product of force, it could only be maintained by force. Feudal obligations were often conflicting, because the same person often found himself a vassal of two contending lords. Obligations were likely to be fulfilled only when opposing force made it expedient. Homage was rendered only to the strong. Thus war in all its forms and ramifications permeated the feudal system; peace was intermittent and served only for recuperation. The termination of such chaos and anarchy was made possible only by the evolution of a central authority strong enough to compel all factions to bow to its will.

From Custom to Law. It is repeatedly stated by anthropologists and ethnologists that the individual in primitive society is held firmly in the rigid bonds of all pervasive custom. He is pictured as being the slave of tradition, as following the tribal rules in the spirit of most unquestioning obedience, even when they involve hardship and self-sacrifice. Professor Rivers, for example, says that, "Among such a people as the Melanesians there is a group sentiment which makes unnecessary any definite social machinery for the exertion of authority."³⁰ This view has, however, been vigorously challenged by Professor Malinowski³¹ who shows not only that crimes and misdemeanors are

³⁰ *Social Organization*, p. 169.

³¹ *Crime and Custom in Savage Society*, Harcourt, Brace and Co., 1926.

committed and punished, but that in general the savage is moved by a variety of emotional factors and utilitarian considerations, very much as are men in modern society.

It follows that the observance of the traditional rules in savage society "is at best partial, conditional, and subject to evasions."³² There is, of course, a general desire for social esteem and fear of the condemnation of community sentiment; there is also in the background, fear of punishment. Nevertheless, in day-to-day relations of whatever sort, custom is spontaneously observed in most cases, partly because of habit and partly because the social relations are so organized as to be reciprocally advantageous. In other words, the rules of custom have grown up out of human experience and embody the results of thought and experience as to how to carry on a common life with least friction. There is and must be some constraint of the individual. Individuals must feel not only an inner psychic propulsion from training and habit to do their duty and to recognize the rights and interests of others, but also that the community has the power to make them uncomfortable, if they do not do so. At the same time, primary reliance for obedience to custom must be placed on the appeal to self-interest, and on those magico-religious controls which often set at naught all utilitarian considerations. The savage is moved in his economic relations by his desire for food, to-morrow as well as to-day, by his desire for the prestige due to wealth and to generosity, his desire for display, and similar motives. He evades his obligations if he can do so without loss of social standing. He also commits crimes and misdemeanors and is duly punished therefor.

The statement, therefore, in a recent excellent work³³ that, "The whole life of primitive peoples is custom-ridden," neglects the fact that this is true of our own society. When, however, it further states that "the early growth of the state depends on the transformation of customs into laws," it brings out the important fact that primitive society is governed mainly by custom, whereas we are governed largely by laws. This distinction between tribal and national societies is one of degree and not of kind. Law is essentially distinguished from custom by its coercitive character. That is, law has back of it the organized power

³² *Ibid.*, p. 15.

³³ R. M. MacIver, *The Modern State*, Oxford Univ. Press, 1926, p. 37.

of the community, represented in government or political institutions, authorized by community sentiment to compel obedience or to punish violation.

Law thus becomes that part of the customary rules of behavior which will be enforced by the use of physical means by constituted authorities. Law is enforced, not merely by the psychic factors of conscience and desire for social esteem which enforce morals and manners, but by police power as well. In the simplest, most homogeneous community known, such as the Andaman horde, there is such a complete lack of anything like governmental organization that there is no punishment for crime, even murder, except loss of esteem. This is a punishment of considerable severity in a group where local ties are strong and individual dependence on the community very great.³⁴ In all societies above this primeval level, there are parts of the established custom, such as the rules of descent and marriage, which are enforced by physical means. With the development of the headman and council of elders, the machinery for the promulgation of law, for the decision of disputes and doubtful cases, and for enforcement becomes more clearly defined.

We enter clearly into the régime of positive law when conquest leads to the organization of many aspects of community life by a governing class, usually a minority, largely in its own interest. Here the compulsory quality of law becomes clean-cut, because the mandates of the governing class are enforceable by the only organized police and military power permitted within the community.

The Class State. Conquest and the superposition of races brings into existence a definitely stratified society which is diversely called the régime of status, or the régime of castes. Sociologically viewed, one of its outstanding characteristics is its mixture of kinship, personal loyalty, and territory as structural elements, with the increasing emergence of the latter as the essential basis of organization. Equally important is the enormous increase in the authority of the governing powers. The feudal régime is predatory in origin and nature, and reveals with striking clarity the exploitative nature of political power. The conquerors are confronted with the problem of so organizing society as to make permanent the enjoyment of the fruits of conquest. This is

³⁴ Lowie, *The Origin of the State*, p. 5.

accomplished above all by reserving to themselves the sole right to bear arms. This gives them arbitrary and absolute dominion over people and territory. Their claim to title to all the land rests at first on force, but it soon becomes an unquestioned element in law and morals. The upper classes thus constitute a *politico-military class with almost unrestrained power to compel the obedience and control the activities of the economic classes below them*. The feudal system thus makes a tremendous step forward in the evolution of the state, or those institutions through which government is carried on. The feudal state more clearly than any other is, as Oppenheimer says, *a control of organized political power for the purpose of exploiting the economic resources of a people and a territory*. No state ever loses its military character. Even a democratic state assumes the right to call every able-bodied man to arms, and views refusal as a species of treason. Nor do states ever entirely lose their predatory or exploitative nature in the domination of one class over others, and the control by it of the agencies of law-making, law-interpretation, and law-enforcement, more or less in its own interests.

This is frequently advanced nowadays as an argument against the capitalist states of western Europe and America. The aim of democracy has been to destroy the last vestiges of that class privilege which rests upon control of the organized power of the community. That it has not fully succeeded is abundantly evident in tariff and taxation legislation, in the unequal treatment of rich and poor in the courts and by administrative authorities, in the use of police power in the suppression of strikes and public protests, and in other ways. But the source of these inequalities lies deeper than the form of political organization. Abuse of power, or arbitrariness in its use, is inherent in the nature of government. Moreover, the class in power—noble, capitalist, or proletarian, gathers about it not only the support of law and police power, but of large proportions of other classes who serve it more or less as retainers. This is seen in the affiliation of the professional classes with the moneyed element in our society. This is not to be wondered at, nor pointed out as reprehensible, but to be accepted as quite as inevitable as that men will be attracted by the warmth of the sun or love beautiful women. Men should be expected to follow lines of personal advantage. The democratic movement has undoubtedly greatly transformed the

avowedly class state of feudalism, but the bases of personal prestige and the relations of service and protection (or other advantage) are inherent in the nature of social relations. The class character of the state and hence the exploitative element inherent in it are as fully revealed by Soviet Russia as by capitalist England or America.

The feudal state is marked by a close affiliation of the nobility, "lord's temporal," or first estate, with the priesthood, "lord's spiritual," or second estate. Their union was accomplished, sometimes by Christian swords, and was a very important factor in the development of unity of view and mutual understanding in the communities of western Europe. While these two powers were often in open conflict, they worked, as a rule, with sufficient harmony to give a high degree of organic unity to society.³⁵ Until well into modern times State and Church were considered the two primary and nearly coeval agencies in the control of social life, although the ultimate sanction for even state policies was generally held to be religious. The priesthood constituted one of the most extensive feudatories, and its interests were, therefore, one and the same with those of the nobility, as regards the maintenance of feudal dues and services, or the rights of the ruling classes to the usufruct of the soil.

The class state is always in danger of evolving into a rigid caste system, in which lines are drawn between major classes according to function or occupation and finer lines between the layers in each class. Such a culmination was attained in India. Three fundamental features of European feudalism prevented this. One was primogeniture, or the inheritance of title and property by the eldest son. This compelled younger sons often to seek their fortunes by personal adventure and achievement. Another was the maintenance of the principle of competition. There was always a chance for the bold, strong, and skillful to win some kind of recognition not accorded others of the same birth rank. The knightly tournaments were symbols of a lordly willingness to confer honor on whomsoever honor was due. Thirdly, there was the crossing of class lines in marital relations. This, as indicated below, was a basic factor in the evolution of the democratic national state.

³⁵ R. H. Tawney, *Religion and the Rise of Capitalism*, Harcourt, Brace and Co., 1926, especially Chap. i.

These features, however, did not prevent the development of well-defined differences in class feeling and virtues. For warriors, knights, and gentlemen, there was a distinctive class code of behavior and ethics, based on ideals of honor, courage, loyalty, courtesy, generosity, and chivalry. These are indeed noble qualities. Their actual attainment necessarily varied much with the context of the social life in which they found expression, but, with due allowance for the weaknesses of human nature, it can be said that these ideals, whether in western Europe, in ancient Greece, or modern Japan, often produced a nobility and dignity of character and conduct which constitute a valuable social heritage. At the same time they were the ideals of a class that scorned all manual labor, because they lived on the fruits of the toil of others.

For the lower classes, were cultivated the virtues of humility, industry, duty, obedience, and piety. These are the virtues of the poor everywhere. The greatest transformation in ethical ideals wrought by the emergence of democracy was the promulgation of the dignity of labor. This elevated the social status of the lower classes, strengthened the middle class virtues of thrift, industry, and sobriety, and made possible the merging of the hereditary aristocracy in the new class of merchant adventurers who were laying the basis for the modern capitalist system.

From Martial Rule to Civil Government. The military essence of the state as the organized power of the community is clearly revealed by the origin and structure of the feudal state. This military character fell slowly into the background in Europe, as the nobility became more and more interested in the economic development and civil processes of their feudatories. We cannot trace here the various processes by which one of the feudal lords gained ascendancy by escheats, forfeitures, diplomatic marriages, and otherwise, and became King in fact as well as name, though sometimes retaining the military title of Imperator, Kaiser, or Czar. It was, indeed, a process which did not always occur. In England, William the Conqueror had in 1086 required every fief holder, large or small, to take an oath of allegiance to him directly and personally. There was thus no divided loyalty. On the continent, however, the great counts and margraves, each with his own vassals sworn to personal loyalty, were often able to defy the king. They even acquired immunity from visits to their

domains by emissaries of the king, and thus became virtually independent potentates. There resulted a reign of interfeudal war which ended only when the kings had again become sufficiently powerful to destroy the baronial castles, or reduce their owners to subjection. Nor can we detail how the king's chief vassals became a King's Council or Council of Peers, who were at first expected to attend a meeting at the king's call, but later, as in the famous case of Magna Charta, asserted the right to be consulted on matters of finance, peace, and war, and thenceforth constituted a Parliament. Nor can we show in detail how the "King's peace" was extended, at first to the suppression of feuds and the settlement of disputes between his "tenants-in-chief," and finally to the establishment of a system of courts and legal procedure which supplemented and superseded the lord's local courts.

These two processes, however, proved immensely important. We may call them respectively *the emergence of hereditary kingship*, and *the establishment of legal rights*. The reëmergence of the king was all important, because it made him the representative and symbol of a united people and a single territory. The primary weaknesses of continental feudalism were its inability to prevent constant feuds within the larger community, and its inability to successfully defend this community from outside aggression. Both ends were furthered by the advancement in the power of the king. This was accompanied by the composition or commutation of feudal dues and services into *taxes* enabling the king to establish a militia, or army of citizens. It was this alliance of king and people against the divisive forces of ambitious nobles that brought nationalism out of feudalism.

The establishment of legal rights replaced the régime of force by a régime of relative justice. This was a great factor in internal peace, the development of community sentiment, and the furtherance of ambition and industry on the part of the lower classes. This process was carried forward more rapidly and farther in England than on the continent in the evolution of the "common law," which was largely a systematization of the local customs of rights and duties by means of the decisions of the king's judges. Thus a sense of both liberty and security was conferred on the humblest citizen; the king became the defender of the immemorial rights of the commoners against the rapacious oppression of their overlords; the state which began as the agent of forceful exploita-

tion became the agent of peace and a minimum justice. Predation and exploitation doubtless still existed, but they lost their arbitrariness. This made possible the accommodation of individual psychology and of popular mores in an adjusted scheme of rights and duties.

NATIONALISM

Meaning. Nationalism is essentially the organization of mankind into social groups on the basis of territory. The terms "nation," "state," and "government" are often used interchangeably, and they are usually different aspects of the same thing, but they may be logically distinguished. The full-fledged nation has three characteristics, namely, a relatively homogeneous culture, a consciousness of common origin and destiny, and independent possession of a definite territory. A nationality falls short of a nation either because, like the Jews, it is not identified with a definite territory, or because, like the Poles before the recent war, it lacks political independence. There is in last analysis little difference between a tribe and a nation except in the relative importance of kinship and territory as factors in social organization. Modern nations really represent the territorial combination and psychic unification of what were once separate nations and nationalities; their components were in fact, at a still earlier stage, tribes and confederacies. The English nation and the Scottish nation are now parts of the British nation.

Historically, the people who constitute a nation emerge from feudalism with strong feelings of provincial, that is, local, loyalty and separatism. In time, however, they acquire a consciousness of common unity in culture and territory, and begin to think of themselves as different from other national groups in race. The French, for example, have at different times thought of themselves as Romano-Gallic, Celtic, Teutonic, and Gallic in blood. These shiftings of idea and sentiment have corresponded with political changes due to the conflict of groups and the competition of mores, and they have always contained large elements of myth. Social forces seem able to cultivate in a nation whatever tradition as to race seems to harmonize with dominant elements. If the French have thus idealized and flattered themselves, now as descended from a combination of heroic Celt and noble Roman, later as descended from blond, long-headed Teutons, and now as

descended from semi-brunet round-headed Gauls, they have only done what others do.³⁵ The idea of common territory also arises slowly in consequence of historical processes, of which common military experience and tradition, associated with the rise of the king, is highly important.

The state may be strictly defined as the organization of a people for governmental purposes. It is the organized political power of the community, supreme throughout its territory. A nation, combining the ideas of common race, common culture, and common territory, establishes a *national state*. The nature and form of the state is determined by the location of the ultimate sources of power. In the *feudal state* this power is possessed by the upper classes, those who control the military and the religious power whereby other classes are regimented. In such a state, powers of compulsion are prominent in the carrying out of the will of the state, as expressed in the decrees and laws of the ruling classes. It must be remembered, however, that custom or habitude, and the accompanying moral and religious training of the population, make even imperial absolutism right and even sacred in popular esteem. Moreover, kingly power is itself held in check by the force of custom, tradition, and popular emotional attitudes. The *democratic state* is distinguished by what is called popular sovereignty, or the possession of ultimate power by the people. Those who constitute "the people," may vary greatly. In this country the vote was at first restricted to property owners and church members; and only recently have women been included within the sovereign people. Obviously, the people may express their will in various ways, but in practice this is done either by an assembly of the citizens as in the New England town-meeting, or by the election of representatives. The United States is a democratic national state with a republican (representative) government.

A government is the agent of the state. It constitutes the actual machinery set up by the state for the determination of policies, the making of laws, and their execution by judicial and administrative authorities. The constitutional democratic state expresses the main principles for the organization and limitation of governmental powers in a constitution, which is looked upon as inviolate

³⁵ See the author's *Racial Basis of Civilization*, A. A. Knopf, 1925, especially Chaps. iv, vi, and vii.

by the government and a protection of the people against usurpation of power by governmental officials. In this, however, constitutions are not always successful, since some discretion necessarily attaches to every governmental office, whether judicial or administrative. Moreover, the agents of the state may come under the control of powerful special interests, who are thus enabled to deny to individuals and even to considerable minorities that protection of property, rights, and liberties which the constitution is designed to effect. The will of the state is necessarily made effective through its governmental agents, but the latter may not always accurately represent that will. The aim of the state is the promotion of the general good, even though this be largely identified with the advantages of a particular class. Its will is an expression of the distribution of power and the sense of justice in the nation. The defeat of its will by the arbitrariness of its agents is a defeat of justice as existing social forces would interpret it, but there is often neither time nor facilities for an appeal from government to state.

Steps in Transition from Feudalism to Nationalism. This transition covers numerous complex processes culminating in the sentiments of national unity. Psychologically, the essential feature is the transmutation of the fierce personal loyalties centering around local dukes and princes and the equally fierce local patriotisms attached to provincial territorial units into an equally deep sense of a common people and common territory within the national boundary. That the process was extremely slow is shown by the fact that various European countries achieved national unity only in the nineteenth century, or more than a thousand years after migration and conquest had instituted the feudal system. A genuine sense of nationalism was achieved in France only after the Revolution, in Germany only after 1870, and even in the United States only after the Civil War.

It is impossible here to study such transitions in detail. Some of the changes have already been mentioned, such as the rise of the king and the development of a common system of judicial procedure. At the same time a process of *racial amalgamation* was proceeding more or less rapidly. After the thirteenth century, there arose the *middle class* of merchants and traders who thereafter increased rapidly in numbers and power. It was they who finally overthrew aristocratic institutions and introduced the

modern era of democracy. We may briefly note a few aspects of these developments.

Rise of Central Authority. The first step in political consolidation is nearly always the imposition of forceful domination. Strong men with well-organized military power impose their dominion over a people and a territory. If such dominion continues for a more or less extended period and is accompanied by sound policies of unification, it results in the development of sentiments of racial and territorial unity. The process, historically, is endless, as well as varied in extent. Charlemagne built a vast but ephemeral empire; lesser men built small but relatively enduring principalities. There is always a tendency for areas united by military force to fall apart after the death of the master personality. That a succession of such men may often build a more or less enduring kingdom is shown in the history of both France and Germany. For long centuries, however, the absence of easy and extensive communication, interchange of goods, common language, common customs, and common tradition, permitted the sentiment of local patriotism to burn more intensely than the sentiment of common country. Local differences of language, dress, and other folkways and mores, the tradition of frequent wars with neighbors, the pride in local heroes, and the belief in racial differences and superiority, which every group cultivates as a source of egoistic satisfaction and of courage in times of testing, favored centrifugal tendencies and provincialism.

The rise of kingly power and authority was, therefore, an essential factor in suppressing local exclusiveness. By repressing inter-provincial feuds, it widened the area of peace. This was an encouragement to those arts of peace, especially trade, which become the strongest support for the continuance of peace and the primary argument against disruptive war between factions within the peaceful area. The king's peace, therefore, tended to bring increasingly substantial support to the central authority. It was thus essential that turbulent barons should be held in check by fear of a more powerful military force, in order that the economic and psychological bases of national unity might have opportunity to evolve and solidify. The essential military character of the state is thus once more revealed. By widening the scope of positive authority and law, by spreading over previously disparate political units a common police and judicial procedure,

the prestige of central authority was increased, and the habit of looking thereto for the guarantee of rights and liberties was cultivated. These same processes resulted in the spread among the upper and ruling classes of the language of the king's Court. This official tongue first displaced provincial dialects in the language of the law and the courts; it then became the language of polite intercourse; and finally the language of trade and the market place.³⁷

In other words, it would seem that perhaps the most essential element in the development of nationalism out of provincialism was the existence of a politico-military power strong enough to impose its authority over lesser politico-military units, long enough to permit the fading of local loyalties and animosities and the development of common language, common law, and a sense of loyalty and obedience to a common authority. It may be added that this process was enormously aided by the union of provincial military units under the common banner of the king in the repulsion of a common enemy. This was, however, a slow development and became really effective only when taxes became adequate to the support of a royal army. Even as late as 1793, the Bretons of west France refused to join other French forces in the repulsion of the invading Prussians. Their own province was not endangered, and they were quite willing for others to look out for themselves. The Napoleonic régime, however, substantially increased the psychological basis of French nationalism.

Rise of Idea of a Common Blood. In the early stages of feudalism there are two distinctive and often vigorous sentiments of racial differences. There is, first, the consciousness of differences in blood between upper and lower classes, or between conquered and conquering, such as Saxon and Briton, or Norman and Saxon. Each of these classes may be actually much mixed in elemental racial type. They may, in fact, be quite similar in race, but the upper classes especially cultivate a sense of racial solidarity and distinctiveness. This, indeed, is characteristic of dominant military minorities, for obvious reasons. Their strength and continued domination depend largely on their unity.

Then, secondly, there are the provincial differences. For centuries, Normans, Burgundians, Bretons, and Provençales in

³⁷ For details see Francis Delaisi, *Political Myths and Economic Realities*, Harcourt, Brace and Co., 1927.

France thought of themselves as of distinctive races, a sentiment readily developed on the basis of differences in language and custom. Each cultivated a consciousness of superiority in physical strength and prowess, intellectual acumen, and æsthetic tastes. Such sentiments are engendered and maintained for military purposes and are greatly strengthened by the tradition of common heroes and military success. Such provincial sentiments still persist all over Europe, including the British Isles, but their intensity has been softened and largely subordinated to a consciousness of a wider racial unity within the nationalistic group. It is obviously necessary that both types of separatism, racial and territorial, be reduced sufficiently to permit the growth of the idea that one blood pervades the entire nation.

The crossing of racial elements sets up a process of amalgamation which tends to reduce traditional sentiments of differences between conquered and conquering. Such amalgamation proceeds at first by the crossing of the males of the superior with the females of the inferior classes, usually in extra-marital relations. There results an increase in the number of intermediate types. The appearance, in the middle ranks, of superior individuals able to force their entrance into the ranks and privileges of the upper classes blurs the lines of racial demarcation and softens the sentiments of racial pride and exclusiveness. The growth of wealth in the commonalty and the diversification of occupational and professional ranks further obscure the class lines. Wealthy commoners form approved marital unions with the nobility. While the sense of social gradation is not lost, the sharpness of differentiation gives way under processes of amalgamation to a sense of integration from top to bottom.

The amalgamation of races and the softening of lines dividing conquered and conquerors is accompanied by that increase in kingly authority which finally suppressed provincial independence and separation. In time there developed the sentiment of a common nationalistic race. That this process is slow and difficult is shown by the break-up of long established political units like the Austro-Hungarian Empire during the World War. Ancient bases of separation still retained powerful emotional appeals. Even in this country the idea that Northerner and Southerner are racially distinctive persisted until the close of the last century. The problem of Alsace-Lorraine is largely due to the retention

within those provinces of the sentiment of distinctiveness of race, language, and custom. Wherever the true nation is formed, however, the consciousness of unity of blood throughout the group arises and becomes, next to the attachment to common territory, the most important element in the patriotic complex.

Mythical Elements in Nationalism. We have seen that nationalism is based primarily on sentiments of territorial and racial unity. These sentiments, like most of the faiths men live by, are based very largely on belief, rather than objective fact. They are, moreover, beliefs sanctified in the emotional responses of the individual by nationalistic myths. Myth thus plays a rôle in political integration comparable to its rôle in religious belief. It is itself a consequence of the vigor of tribal or national patriotism, and it in turn supplies the tradition which strengthens and sanctifies the patriotic impulses out of which it arose. It is possible to show that the national territory is not a natural geographic unit, and that the idea of racial distinctiveness is largely illusory. If one considers the boundary of any of the great nations, he observes that it is largely artificial. The line between the United States and Canada, for example, runs for more than a thousand miles along the forty-ninth parallel. There is in that long stretch no natural boundary short of the Arctic Ocean. On the east the natural boundary would be, perhaps, the Great Lakes and the St. Lawrence River, whereas the actual boundary is almost wholly artificial. The Mexican boundary, likewise, is primarily a result of historical accident. Rivers no longer constitute natural boundaries, since they may be bridged by highway and railway, and passed over by airplane with the greatest facility. Likewise, European boundaries are a consequence of historical tradition and the distribution of politico-military power, rather than the result of geographical exclusiveness. There is no natural boundary between France and Germany, nor between these two countries and any of their neighbors.

The idea of nationalistic race is much more fictitious. The same primary European races are found in all the countries of western Europe, though in differing proportions. What seems to the average Frenchman, German, or Englishman to be racial difference is very largely a consequence of differences in language, religion, dress, standards of judgment, and modes of life. It may well be doubted whether the consciousness of racial differences

between France, Germany, Holland, and Belgium to-day is any greater than the consciousness of racial distinctiveness between the various provinces of France or the various kingdoms of Germany 200 years ago.

Rise of the Middle Class. Probably the most important single factor in transforming the feudal into the democratic national state of to-day was the rise to wealth and power of the third estate, the middle class of merchants, artisans, and traders. Their growth in numbers and prestige was the result of many factors operating in European culture after the thirteenth century, of which the chief were the growth of trade and the introduction of a money economy. As they became more numerous and wealthy and thus became conscious of themselves as a distinctive element with special interests and needs, they demanded freedom from feudal dues and the right to govern themselves. To these ends they formulated the theories of *political democracy*, *economic individualism*, and *ethical utilitarianism*. Their triumph, and hence the dominance of their ideals in modern political, economic, and ethical concepts, seems to have resulted primarily from three underlying social forces. There was, first, the discovery and settlement of America. For fully three centuries America was viewed as a "land of opportunity" to which those oppressed by European feudalism could escape. The power of hereditary privileges was necessarily weakened. Moreover, the conditions of life here made the triumph of ideals of democratic individualism inevitable; and developments here reacted powerfully on European thought.

A second favoring condition was the rapid growth of the money economy. This was in part due to the magical transformations in medieval standards of valuation wrought by shiploads of gold and silver from the Americas. Even the middle class virtues were dictated by *the logic of money*. If one is to accumulate the wealth which gives comfort and respectability, he must practice thrift, industry, sobriety, devotion to duty, and that remarkable combination of piety with business acumen so well typified by the traditional Yankee. The complete triumph of the commercial spirit has finally brought nearly every aspect of social life, even virtue, justice, and art, very largely under the dominance of pecuniary standards of valuation.

Finally, the bourgeois ideals were aided by the growth of science

and invention and the development of the great industry. The emergence of the factory system symbolizes the complete ascendancy of the new capitalist order, for it signifies the control of the agencies of production by a moneyed class animated by the spirit of profit-seeking commerce. The feudal state is a rural state. It rests on the control of the soil by a landed aristocracy. It can persist only where work on the soil is the necessary source of livelihood for the mass of the population. It depends on the fact that the control of the soil automatically gives command over the services of others. Consequently, it dissolved steadily with the development of new forms of wealth and livelihood typified by money and trade. The capitalist state is urban, commercial, and financial. It rests on the control of the new forms of wealth and the new means of production represented by machinery, money, and credit. Wall Street is thus a symbol and an agent of a new type of society and a new form of politico-economic control.

The Middle Class Political Philosophy. The political theories accepted at any time and place represent a rationalization of the hopes and utilitarian interests of the governing classes. They are quite different, therefore, in the feudal class state, in modern America, and in Soviet Russia. Moreover, any class not fully represented in the state and aspiring to greater power therein formulates a theory of social organization and of rights and liberties which justifies its claims. Here, again, we meet the myth-making tendency of the human mind. The doctrine of the divine right of kings was thus symbolic of the feudal state in which king or emperor was viewed as anointed of heaven, sacred and inviolate in person, and capable of doing no wrong. So long as that theory was a more or less sacred part of the mores, it gave rightness, and hence strength, to the social order which produced it. *The theory of natural individual rights* was brought forward by the rising middle class as an opposed theory. To-day, the ideals of democracy are as sacred in popular thought as kingship was some centuries ago.

We may first view the political claims set forth by the natural rights theory. These doctrines received one of their earliest formulations by John Locke, following the revolution of 1688 and as a justification therefor. They constituted the basic political principles of the American and French revolutions and have since then deeply affected the development of political institutions in

all parts of the world. They advanced the claim that men in a "state of nature" are free and untrammelled; that they are "endowed by nature with certain inalienable rights among which are life, liberty, and the pursuit of happiness." If men are thus endowed, then they cannot, without their own consent, be deprived of their liberties and of the property which that liberty enables them to acquire. It further follows that they have a right to determine for themselves who shall govern them, a doctrine known as popular consent or popular sovereignty. Finally, if at any time they do not find the government satisfactory, they may overthrow it and set up another, a doctrine known as the right of revolution.

It can be shown, however, that men never lived in a state of nature, but always in a more or less organized group; that there are no natural rights, but only those political and civil rights which the group accords the individual in the interest of individual and group welfare. It can also be shown that, when the claim was advanced that the "people" should rule, there was no intention of including all the people, but only a very limited portion of them. Even the Constitution of the United States was formulated by the representatives of a small fraction of the American citizenry, and ratified likewise.³⁸ Finally, it can be shown that the right of revolution is logically untenable. If those who find the policies of a government displeasing have the right to overthrow it, then any minority is justified in rebellion. This would revive the chaos and rule of force which made the Dark Ages so long and so dark.

Popular government is feasible as a government of reason and not of forceful exploitation, only when two essential conditions are maintained. One is *the principle of majority rule*. The majority may not be right in any ultimate sense. Their decision may not be the result of sound reason, often because facts are obscure and human understanding incomplete. The rule of the majority is, however, essential for decision and action. Among primitives the unanimous consent of all the elders or of all the representatives (as in the Council of the Iroquois Confederacy and the modern jury) was often necessary. This meant indecision, confusion, and inactivity.

³⁸ C. H. Beard, *An Economic Interpretation of the Constitution of the United States*, The Macmillan Co., 1913.

At the same time, it is equally important to maintain *the unrestrained right of the minority by all the arts of persuasion to convert itself into the majority, if it can*. We here see the tremendous significance of the constitutional guarantee of freedom of speech, of the press, and of assembly. When these liberties are curtailed, minorities must necessarily either submit to what they consider a transgression of rights, or they must resort to force. This is a principle which ruling classes and those temporarily holding political office are prone to forget. Feeling secure in their command of the organized forces of the community, they sometimes repress the constitutional rights of radicals and agitators, the answer to which is shown by a thousand instances to be bombs and assassination. One of the basic factors in the remarkable stability of English government during the past century of amazing social change has been the high regard for the right of minorities to express themselves. It not infrequently happens that grievances fully aired are already half cured, while their explosive power can do little damage when confined only by the blue sky.

The ideal of equality advanced by middle class political philosophy likewise requires constant clarification. The political doctrine that "all men are created equal" could not have meant that men are by inheritance equal in physique, intelligence, or capacity for moral excellence. It meant rather that they have, or should have, an equality of political and civil rights. As members of the body politic they should have the right to vote. As free citizens they should have equal rights before the law. In the face of the unequal distribution of wealth, the ignorance and weakness of some, and the cunning, greed, and strength of others, political and civil liberty and equality are never more than approximated.

Moreover, the doctrine has many aspects and raises new problems with every important change in the social system. Just now socialistic and communistic theorists argue in favor of an equality, or an approximate equality, in conditions of life and the consumption of enjoyable goods. They may admit that men are subjectively unequal, and yet they argue for an objective equality. There can be no doubt that enormous differences in wealth and the power which wealth bestows may endanger democratic institutions. In Rome, democracy gave way to plutocracy, and it had

happened many times before in the city states of the ancient world. There are, however, two fundamental facts which make the achievement of objective equality, or even an approximation to it, impossible.

In the first place, the vast differences in vigor, intelligence, cunning, and daring of men inevitably force some men into subordination to others. Aristotle said that "Some men are born to rule and others to be ruled," an aphorism which contains a large element of truth. In the second place, the effort to establish objective equality would require the abolition, or the fundamental alteration, of the right to own and acquire property. But the right of private property has fully justified itself as an encouragement of thrift, industry, and a sense of social responsibility. For most people the only questions that can be raised are whether there is any proper limit to the amount of property any individual may acquire, and what limits should be placed upon its use. These are questions too large for treatment here. The state already possesses adequate powers to control the acquisition and use of wealth in the public interest and well-established traditions for their use. These powers are taxation, especially the taxation of incomes and inheritances, and the enforcement of publicity of accounts.

Moreover, the problem of private wealth is fundamentally altered in our society, as compared with earlier ones, by the fact that the corporation has become the chief, almost the sole, agency for vast business undertakings. The great fortunes must be set to work through them and thus furnish goods, services, and employment for the community. Moreover, the public at large is investing in them more commonly than heretofore; they tend in fact to become almost the sole means of investment for a large proportion. Whether this will enable them to be more unscrupulous than before is a question, but it need not increase inequality to an extent that makes exploitation more frequent. The corporation is a creature of the state and can be forced by judicial and administrative procedure to disclose to public scrutiny its policies, its income, and its outgo. These powers of the state are, however, effective only when the public itself is alert and intelligent. They lose their efficacy when the corporations themselves, through their agents or political hirelings, gain control of governmental machinery. The people as the ultimate power in the democratic state

can save themselves from monopolistic exploitation, if they are sufficiently awake and vigorous; but if they do not, then we may be sure that the era of democracy approaches its end and a more plutocratic phase of western culture is manifesting itself.

We conclude that the basic ideal of democracy as regards equality is equality of opportunity. By this is not meant that each and all shall have the same education and training, but rather as full an opportunity to develop his powers and capacities as social resources permit. There is no way in which the moron, the able, the talented, and the genius can be made equal in education or training. What is opportunity for one is not for another. In spite, therefore, of all efforts at universal education, class and occupational differences will remain. There is, indeed, considerable evidence that brighter minds learn faster and continue to learn longer than dull ones, so that the greater the amount of free education provided by the community, the wider apart in occupation and profession will be those who utilize it to the full of their capacities. Objective differences will remain obvious and potent regardless of efforts at equalization of opportunity, so long as such subjective differences persist. This is not, however, a result necessarily to be decried, for a complex civilization has need of many kinds and grades of ability.

There is, at the same time, one probable effect of extensive popular education which is not often noted. It has the effect of drawing talent from every economic and social rank toward the top. The gifted child, wherever born, tends to be caught up by the educational machinery and carried into the professional and higher business ranks. This has the effect, at first, of enormously increasing social efficiency, for it results in a more complete utilization of all grades of ability. One ideal of social democracy is to lift every individual as high in the economic and social scale as his abilities permit. If this could be accomplished, then society would achieve a hundred percentage efficiency in the utilization of its available talent. This would introduce a period of remarkable social dynamics, a time of numerous inventions, rapid material progress, and feverish activity. We seem now to be in such a period. But can such conditions continue indefinitely? The answer will vary according to one's mental predilections, but we may point out that those at the top in our society have few offspring. There may, then, be some danger of a gradual exhaustion

of the reserve and latent talent in the population, if all naturally able individuals are drawn to the top. Moreover, such exhaustion occurs at a time when social life is becoming immensely more complex than it was in the simple village and agricultural community of two generations ago. It then becomes a question of profound importance whether the traditional forms of popular government can continue to work successfully in an increasingly complex society. There are numerous historical precedents for the fear that democratic institutions may be transformed into those of oligarchy or dictatorship.

Individualism and Utilitarianism. As stated above, the ideals of democratic individualism represent the aspirations and the interests of the new capitalist class. For them the theory of liberty found its most important justification in the ideals of private property and the desire of the merchants and traders to be free from state supervision and control. For this purpose there was formulated the doctrine of *laissez faire*, that is, that the state should not interfere with the economic pursuits of its members. The view was cultivated that any interference by the state is evil, and especially that the undertaking of economic activities by the state is sure to be accompanied by waste, inefficiency, and corruption.

These theories were given an ethical basis in the doctrines of utilitarianism. These were (1) that every individual knows his own interests best; (2) that self-interest is the dominating motive in economic activities; (3) that, when men follow their own interests, they work harder and more fruitfully, and will thus bring into existence the greatest amount of goods and services; and (4) that "the greatest good to the greatest number" is served by allowing men freely to seek their own material advantages.

The foregoing propositions were at the basis of the nineteenth century attachment to the principle of competition. It was argued that the most reliable method of determining the value of goods or services is by free competition in the marketplace. If we ask how much goods or services are worth, we have two methods of arriving at an answer. One is to see how much they will command in competition with others. A second method is that of politics, to see how many votes will be cast for them. As a rule, men judge more thoughtfully when they are called upon to back their judgment with money than when they back it with votes. Fi-

nally, we see in the above propositions the basis for the long accepted theory that, when the state does interfere with industrial activities, it should do so for the purpose of preserving competition. This view is typified in American anti-trust legislation designed to prevent monopolies and combinations "in restraint of trade." Nevertheless, the steady pressure of social circumstances has compelled a progressive modification of the traditional forms of these theories.

The Secular State and Social Regimentation. One of the most momentous controversies in the evolution of modern institutions was that between Church and State. The gradual separation of their jurisdictions and functions was an essential condition for the emergence of the full power of the secular state. It made possible the development of a purely non-religious view of citizenship and of the ends and aims of earthly existence. The result has been that the process of secularization mentioned in an earlier chapter has now enveloped nearly the whole of those relations once viewed as peculiarly and exclusively the province of religious revelation and authority. The secularization of government was accompanied by the secularization of business. The Church sought in vain to withstand the gradual suffusion of life by the pecuniary and utilitarian considerations that accompanied the growth of capitalism and the logic of the money economy.³⁹ Gradually business activities came under the control of the state, business law grew apace, and ideas of contract and personal responsibility replaced ideas of status and personal dependence.

Likewise, the family has been secularized and "statized." Formerly viewed almost exclusively under religious idealizations, marriage has become a civil contract and every member of the family regulated by law as to his rights and duties within the family institution. The child is no longer the possession of its parents, but above all a future citizen whose surroundings and training from infancy are becoming matters of state concern. Almost in our own day the state has for the first time in many centuries taken up the immensely important function of training the next generation for the responsibilities of life. It entered this field against all tradition and in spite of active opposition. In many parts of Europe the common school is still new and undeveloped; yet in several countries education is viewed as the state's

³⁹ See Tawney, *op. cit.*, Chap. i.

greatest function. Moreover, the state system is being rapidly extended at the top and at the bottom; it is also being diversified in many directions so as to reach adults and all sorts of vocational groups.

These are only examples of the increasing pervasiveness of state power. There are countless others, especially in the enactment of health and morals legislation, pure food and drug acts, and other ramifications of police power. How may such expansion of state activities be explained? Primarily by the increasing solidarity of community life. Social life as a whole is becoming highly integrated, and *the state as the one and only agency for the expression of the organized power and concerted will of the community inevitably expands its functions.* A modern population no longer lives in scattered hamlets, but in great cities connected with each other and with every nook and corner of the land by many means of transportation and communication. Important events are known almost instantly and simultaneously all over the land. Not only are we thus formed into a compact whole, but we are mutually dependent, each on thousands of others, for daily bread and daily comforts. The possibilities and the need of unity of thought and action are thus increased many-fold.

Moreover, the very compactness and mutual dependency of social life makes restrictions and regulation by the state imperative in the interest of peace and well-being. Liberties, which I may enjoy with harm to nobody in the country, may prove obnoxious, spread disease, or otherwise become a public nuisance in an urban area.

There is also the almost irresistible desire on the part of a democratic state to confer upon its members, by force of law, those habits of life which experience, science, or the moral convictions of well-meaning but sometimes stupid reformers, find advantageous in the interest of health, conduct, and efficiency. Here we come upon a matter of crucial importance, namely, where the line should be drawn between the alteration of standards of private behavior by law and their alteration by such voluntary processes as education, moral suasion, and public opinion. It is the tradition in Anglo-Saxon countries that the presumption is always against the resort to law, so that legislation designed to control private morals has been opposed by legal and social tradition.

In practice, however, the invasion by the state of what were formerly precincts of individual liberty has steadily proceeded.

The reason for this is plain. What constitutes the sphere of private liberties necessarily varies with fundamental alterations in the social relations. If we hold that every individual is entitled to all the liberty he can exercise without interfering with an equal liberty on the part of others, we must admit that the sphere of such freedom becomes restricted as waste spaces are filled and each of us lives in close contiguity with and mutual dependence upon his neighbors. For this reason the above line cannot be drawn once and for all. It shifts with the evolution of the social milieu, so that constant legislative experimentation is necessary.

Nevertheless, the legislators in a democracy are not gifted with more than ordinary wisdom; they are sometimes moved by envy of the gifted and the successful; they are often moved by a desire to flatter the vanity of the masses; they are occasionally intimidated by vigorous minorities, especially on issues involving moral questions. Moreover, experience has repeatedly shown that any legal restriction of individual liberty not supported by a decisive majority of opinion is either unenforceable, or can be enforced only at such great expense accompanied by extensive police corruption, and by such subversive means, that the social loss is likely to be greater than the social gain. In all such cases the presumption favors continued reliance on educational methods, the pressure of public opinion, and the desire of the individual to succeed and to stand well in his community, rather than resort to legal enactment.

Socialism and Communism. The foregoing discussion reveals the fact that the increasing integration of social life brings about a very pronounced tendency toward greater collectivism. This raises the question whether the ideals of eighteenth and early nineteenth century individualism seem likely to be abandoned and society consciously organized on a socialistic or communistic basis. The answer involves a clear conception of the meaning of terms. Individualism in its earlier form meant complete non-interference by the state with the activities of citizens, except in so far as was necessary in order to maintain an equality of right. The *laissez faire* theory meant that the state should confine itself to the maintenance of order and the adjudication of disputes

between citizens. All social functions that could be carried out by private initiative were to be left to individuals.

This extreme view was early abandoned, largely on the basis of the *developmental* powers of the state. It was argued that the state could promote the general well-being of the country by carrying on certain activities without profit or even at public expense, which private capital would undertake tardily or only on a profit basis, and at the cost of considerable delay in economic and social development. Thus the state very early undertook the building of highways and bridges; it aided the construction of canals and railways or built them itself. It established post-offices and undertook the supervision of banks and other fiduciary institutions. With the growth of population, cities built water-works and even street-car lines and municipal gas and electric lighting plants, while national governments built docks, drained rivers and harbors, subsidized steamship lines, controlled mines and forests, and otherwise extended their activities. In all these cases it was argued that broad benefits were conferred on the community at large more quickly and more extensively than would have been the case, if these activities had been left entirely in the hands of private persons seeking profits.

Meanwhile, the socialists proposed a great extension of governmental activity, especially to the ownership and management of mills, factories, railways, mines, and other means of economic production. The communists carried these demands one step further and contended for an equalization of consumption among all classes, on the grounds that society is in reality a highly integrated organization, and that all activities essential to its maintenance are equally worthy of reward. It carried the doctrine of equality to an extreme limit. Both these theories represent the hopes and interests of the class conscious workers and their spokesmen, who see in proletarian state control of industry a means of enhancing the welfare of the propertyless classes.

We may first note that the core of individualism has not been affected by the changes of the last century. That core comprises two things: the responsibility of each individual for his achievement of worldly success, and the institution of private property. There seems no likelihood that either of these two basic principles of western culture will be abandoned in the visible future, though they necessarily undergo modification in detail. Individualism

has deeply affected the social development of the last century by (1) guaranteeing, or attempting to guarantee, to the individual the secure and undisputed possession of the fruits of his industry, thrift, and intelligence, and by (2) introducing, and attempting to maintain, the principle of competition as the best method of determining the social worth of goods and individuals. These have enormously stimulated individual ambition, and produced an outburst of material welfare never previously approached in human history. It is in the dynamic value of these principles that is found the weakness of socialistic and communistic programs, when these are extended to include the whole of the social system.

We may note, secondly, that we have a degree of socialism in various public enterprises, such as the mail and parcel post services and in the publicly owned municipal utilities. The one and only important question involved in the further extension of public ownership is whether such ownership would enhance the general welfare of the community as a whole. This is a question to be answered in each case on its merits, in the future as in the past. In general, however, experience seems to have demonstrated that business methods in the management of economic activities under the spur of private gain are likely to be more efficient than political methods under the spur of popular suffrage. At the same time, we need not blind ourselves to the enormous waste of modern business enterprise, and the utter social futility, or even positive social detriment, of many approved ways of beguiling dollars away from trustful and ignorant individuals.

We may note, thirdly, that we have also a modicum of communism. We have communism of education and public libraries, giving to each all he can take regardless of his individual merit or payment. We now have communism in the use of streets, highways, and bridges, in parks, in sewage systems, and in public health measures. We approximate communism in many city water supplies. It is not improbable that the increasing wealth of society and a better understanding of what contributes to individual health and hence social efficiency may lead in the future to various extensions of these and similar state services. But we may here profitably recall the significant difference between the régime of the family and the régime of the state pointed

out by Herbert Spencer.⁴⁰ The former utilizes the energy and goods of its strong, mature, and able members to support its young and weak. It requires of parents services according to ability in order to give to children according to need. The state, however, maintains a régime of justice. Its membership actually includes only those over twenty-one. To each of them it aims to award the just produce of his effort according to the circumstances of time and place. No other régime can maintain the moral fiber of a population.

Conclusion. Prophecy as to future trends in social organization is fruitless, but it does seem clear that the conditions leading to greater integration of social life have not yet completed their effects. As the world becomes smaller, nations live less within themselves, and they are forced so to organize their economic and political structures as to hold their own in a more obvious competition with each other. The individualism of the last century was largely a consequence of the settlement of the Americas and other sparsely peopled areas. It was synchronous with the expansion of western culture on the basis of free land, scientific advance, and technical progress. That era cannot be repeated, and hence the ideals which it fostered cannot be preserved in unaltered form. Some of its doctrines of individual liberty and equality are already seen to be impossible in a populous, industrial, urban, and co-ordinated society.

To-day the tendency is toward individual and social efficiency. The era of loose-jointed, happy-go-lucky individualism seems to be drawing to a close, and an era of higher social consciousness with more purposeful action by the state in the interest of power and efficiency seems upon us. Karl Pearson,⁴¹ in a very powerful essay, pointed out that the key to the future seemed to be the reduction of internal conflicts and wastes of social energy in order to maximize the national power for the rapidly increasing competition between national states. That view has been borne out by subsequent developments. Nor will it be nullified by the achievement of world peace and international government. Nations will long continue to be the dominant economic and political units, and they can only maintain their populations in advancing

⁴⁰ *Principles of Sociology*, § 322.

⁴¹ "National Life from the Standpoint of Science," *Eugenics Laboratory Lecture Series*, 1905.

standards of living by producing goods at prices which will command world markets. There is thus a strong drive for individual and social efficiency. This involves policies of training every individual according to his capacity and placing him in the industrial organization where he fits. Scientific management in industry and Fascism in political organization thus represent the spirit of the age. Mussolini would put every individual in his niche, fill him with enthusiasm for service of the nation, and by a combination of religion and patriotism make him feel that his work, however humble, was contributing to the glory and honor of his country. The policies of Soviet Russia are similar in many respects, as are also our own policies of educational differentiation, vocational guidance, and increased governmental supervision.

Interestingly enough, something like this was one of the central features of Plato's ideal *Republic*. He argued that social justice and individual happiness are realized when men find those places in society for which their capacities suit them. That is, obviously, not an ideal of absolute but of proportional equality, or the reward of men according to the principle of merit.⁴² But much depends on how men find their places in a regimented society. In a caste system, this is determined by birth; some state socialists and some Fascists would give the government great authority to place men, as in an army, where they seemed most likely to serve best. The experience of the last century with the principle of personal liberty seems, however, to warrant the conclusion that individual, and hence social, energy are raised to a maximum when the right of the individual to dispose of his talents and labor power as he sees fit are scrupulously preserved. This makes the strongest possible appeal to personal ambition, enables men to feel that they shall be able to enjoy the fruits of their own efforts, and preserves the principle of rewarding them according to the social estimate of their services. It preserves also the equally sound principle of forcing men to take the consequences of their folly and their deficiencies. Nevertheless, the further progress of industrial society seems to require that the individual shall be locked more and more securely within the bonds of social

⁴² Cf. the author's "Individual Differences and Democratic Theory," *Pol. Sc. Quar.*, Vol. XXXVIII, 1923, pp. 388-412; for the individualist opposition to state encroachments, read Herbert Spencer, *Man versus the State*, 1886; see also Hilaire Belloc, *The Servile State*, London, T. N. Foulis, 1912.

limitations and exactions. This is not necessarily a hardship, if it is accompanied by an increase of leisure and comforts. What is lost in one direction is perhaps more than offset in others. Moreover, those that have not known the liberties of the frontier do not miss them, while new mores adjust them to the more exacting requirements of a highly integrated society.

Increased regulation results from the steady pressure of social circumstances, a process little affected by the puny rationalizations represented by the political philosophies of democracy, individualism, or socialism. Nationalistic society becomes more aware of itself, and manifests an increasing tendency to grapple consciously with the problems of its united existence. In doing so it is only giving expression to the influence of forces and conditions operating upon and within it. We need not draw the conclusion that it will be able to control these forces and conditions. They are immensely complex and powerful, and produce a process of ceaseless change which is as yet only slightly understood. At the same time, it need not be doubted that society can affect its own future. Such policies as the tariff, state aid in the building of railways and canals, and the subsidizing of research have quickened social energies and hastened developments. What seems now to be most needed is more adequate knowledge of the social forces and processes themselves.

SUMMARY

This chapter has attempted the nearly impossible task of presenting a conspectus of social evolution in one brief chapter. In general, the development of social organization is characterized by an increasing division of labor, with which there necessarily develops more powerful regulative agencies for the coördination of the whole. As social relations and institutions become more complex and more highly specialized, they are integrated by the evolution of governmental authority, religious controls, and moral principles, which accommodate the aims, ambitions, and activities of many persons to each other and lead to a coöperative organization of the group as a whole.

We have found it convenient to present the material under the three headings, Tribalism, Feudalism, and Nationalism, but it should be emphasized that aspects of all of them are found at all stages of social development, and that these stages merge

one into another by imperceptible degrees. The respective principles of kinship, personal allegiance, and territory are not peculiar to particular societies, but are found in them all, though in varying extent.

The family, at first unstable in form, seems to have been the most frequent primordial social unit. The lowest hordes now found consist of more or less distinguishable families; and since hordes have little organization or coöperation, they frequently break up into their constituent units.

Tribal society is best visualized under the terms sib, moiety, phratry, tribe, and confederacy. The sib is a unilateral kinship group tracing descent through either the male or the female line. It possesses a name and a totem, and totemic kindred are always exogamous. The sib is the agent for numerous regulative functions, both administrative and judicial. Its chief authority is a headman or council of elders. The tribe includes a number of related sibs, and is characterized by common language and territory. It has its own chiefs and council; it is an independent political unit; and has as its main function the defense of its territory against all aggressors. A combination of tribes, usually for military purposes, constitutes a confederacy, the highest organization achieved by tribal peoples. Within the tribe are various associations, many of them secret, having political, juridical, religious, or social purposes.

Feudalism rests upon class domination and stratification. At the top is the politico-military class, with whom is allied the priesthood. Stratification on the basis of individual differences is universal, and gives rise to the ever-present relation of leader and followers. Developed feudalism, however, rests on conquest and the resulting superposition of races or blood groups, and hence of classes. Such conquest, among historical peoples, has been carried out by patronymic, nomadic herdsmen. They possess the land, the sole source of wealth and livelihood. They compel the indigenous population to carry on economic activities for their support, in exchange for which they protect land and people against aggression by outsiders. The evolution of feudal institutions is attended by great unrest and insecurity, including the activities of the comitatus, or robber baron and his henchmen. Such conditions compel all lesser persons to unite with the wealthy and powerful in relations of services in exchange for

protection. It gives rise, however, to agencies for positive social control, possessing power to compel obedience and thus to enforce a coördination of activities throughout a considerable area. Feudalism arises from the use of arbitrary military force for predatory purposes, but it establishes the habit and wont of living together among elements that were previously hostile and centripetal. It slowly changes from a military camp to civil government by an hereditary aristocracy.

Nationalism grows out of feudalism by imperceptible degrees. Conditions favoring this transition include, (1) racial amalgamation, which at length replaces the tradition and sentiments of distinctive races with the tradition and sentiments of a people with one blood; (2) the growth of a common language, largely in consequence of the needs of administration and later of trade; (3) the rise of the kingly power to absolutism in government and war, a condition which destroys the atomistic tendencies of rival princes and leads to sentiments of common destiny throughout the nation; and (4) the establishment of a tradition of minimum rights and liberties for all persons, a legal necessity for the release of individual energy and ambition.

In western Europe the growth of trade following the crusades, and the commercial revolution following the discovery of America, gave rise to the middle class of merchants and traders, with their theories of natural rights, social contract, democracy, and individualism. They carried through the American and French revolutions and transformed the already weakened feudal régime into the democratic national state of the present. They formulated the philosophies of utilitarianism and *laissez faire*, but have steadily modified the latter in view of the developmental benefits of state action, and in view of new social conditions. The new conditions resulting in increased power of the central regulative authority have been a consequence of the development of transportation and communication and the growth of population. These have made the entire nation an economic unit intensely conscious of its cultural and psychic unity and of its competitive relationship with other national units. As indicated in an earlier chapter, some sort of international government is clearly indicated by the trend of world evolution, but even so, the nation will long continue to be the distinctive unit of political and economic life.

QUESTIONS FOR DISCUSSION AND FURTHER STUDY

1. Show by illustrations how increasing division of labor requires an increased development of regulative agencies, in a factory, a school system, a church, or the national government.

2. How does the territorial horde of the Australian differ from the genetic horde of the Veddahs or the Andamanese?

3. What is the relationship between the sib and the totem among the Australian natives? the American Indians?

4. Are sib and totemic kindred always synonymous?

5. Compare tribe and nation.

6. Is the following contrast by Sumner-Keller, p. 717, between the Iroquois and the Greek-Roman social systems satisfactory?

Iroquois

Mother-family (nephew inheritance).
Hoe-culture (no domestic animals).
Relatively sparse population.
Communal property in land.
Massacre or adoption of captives.
No conquest.
No territoriality (kinship only).
No classes.

Greeks and Romans

Father-family (son-inheritance).
Agriculture (domestic animals).
Relatively dense population.
Private property in land.
Slavery.
Conquest.
Territoriality.
Classes.

7. Give illustrations from your own observation or knowledge of the exchange of services or money for protection in your own community.

8. Are there classes in this country?

9. Is ours a stratified society, and in what respects?

10. What phases of social evolution as sketched in this chapter are illustrated by Old Testament history?

11. Is there anything comparable to the comitatus in our society?

12. What were the essential social conditions leading to the transformation of the feudal into the democratic state?

13. How did the settlement of America affect the development of ideals of liberty and equality?

14. Can the right of revolution be justified?

15. How does the fact of individual differences affect the main tenets of democratic theory?

16. What liberties of the individual are most worth preserving in the interest of social progress?

17. Is it possible to develop a more highly integrated society with the consequent regulation of individual activity in various directions and at the same time permit more individuality in personal opinion and taste?

18. What do you consider the best cure for social radicalism of various sorts?

19. Do you think it possible, and if so, desirable, to so perfect the social organization that every person will be neatly fitted into his little niche so perfectly that social maladjustment will disappear?

20. The building of nations has depended on the presence of a force strong enough to compel obedience while the counter forces of separatism were being softened by the growth of new habits of thought and action; does it seem likely that international organization will be achieved in the same manner?

21. Can the world be organized for permanent peace without the surrender of some degree of national independence?

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